

**Quinta da Abicada Roman Maritime Villa  
in the Alvor River Natura 2000 Site**  
Study and Proposal for a Cultural Landscape

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in

**Landscape Architecture**

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## RESUMO

A Quinta da Abicada localiza-se numa pequena península em forma de esporão com cerca de 250 hectares, e inclui a península, no seu perímetro as zonas de sapal adjacentes e as áreas de tamponamento. Esta península pertence à freguesia da Mexilhoeira Grande, concelho de Portimão, entre as cidades de Portimão e Lagos. A Quinta da Abicada (ou simplesmente Abicada, como é vulgarmente referida) situa-se entre duas ribeiras, a do Farelo a oeste e a da Torre a este, as quais desaguam na ria de Alvor. Esta última foi classificada como zona húmida Ramsar e faz parte dos locais protegidos da Rede Natura 2000, que reconhece o importante papel desempenhado pelas zonas húmidas e habitats associadas. A localização privilegiada da Quinta da Abicada dentro de um estuário abrigado contém um Monumento Nacional, uma vila marítima romana atualmente sem acesso adequado ao público. Nesta dissertação a Ria de Alvor foi considerada como uma paisagem cultural dada a existência da *villa* romana, com vestígios dum historial agrícola, e o processo de transformação da paisagem ao longo dos tempos através da construção de diques, a drenagem das águas e o uso de sistemas de irrigação. Este trabalho examina a paisagem cultural da Quinta da Abicada, culminando num plano de intervenção com uma proposta de abertura ao público. Esta dissertação tem por objetivo analisar alternativas futuras para o local, tendo em conta os desafios apresentados pelas necessidades combinadas de proteção e de dar visibilidade pública a uma paisagem ecologicamente sensível e culturalmente muito relevante.

**Palavras-chave:** Quinta da Abicada, Ria de Alvor, Estação Romana da Quinta da Abicada, sapal, preservação e conservação de paisagens culturais.

# ABSTRACT

This work examines the cultural landscape of Quinta da Abicada culminating in an intervention plan and proposal for opening it to the public. It discusses future alternatives for the site and the challenges of both protecting and facilitating the visitation of a culturally relevant and ecologically sensitive landscape. The project site contains Quinta da Abicada, a small land spur and its associated salt marsh, mudflats and buffer zones of approximately 250 hectares. The site is located within the Alvor River Natura 2000 reserve, a protected meso-tidal estuary system in the Algarve, Portugal. Quinta da Abicada's privileged position inside a sheltered estuary contains a National Monument, a Roman maritime villa currently without proper access to the public. The area is mostly privately owned and contains saltmarsh, dyked reclaimed land and land that is transitioning back from agriculture. Although protected by Natura 2000, Ramsar, local planning protections (REN) and the National Monument Act, there are pressures on the site for development and ongoing degrading of habitat. Humans have adapted and shaped the fluvial systems over time reclaiming land to benefit agriculture, with the largest transformations during the Government Agricultural Works of the 1950s and 1960s. An intervention and management plan is required to preserve the remaining valuable saltmarsh habitat, restore the important archaeological site to the public and explore options to open the larger site to the public for recreation and education. Research methods include extensive field studies to understand the current state of the habitat as well as exploring land change through a historical lens in the hope that a deeper knowledge of past land use can assist with restoration and design.

**Keywords:** Quinta da Abicada, Ria de Alvor, Cultural landscape, Roman maritime villa, saltmarsh

## RESUMO ALARGADO

Há cerca de 2000 anos na Quinta da Abicada (Algarve, Portugal), numa colina virada a sudoeste, próximo da margem dum rio em frente à cidade romana de Ipsis e do estuário abrigado do Alvor, num local onde abundavam os bivalves e os recursos marinhos erguia-se uma próspera *villa* marítima. Os seus ricos proprietários encomendaram elaborados pavimentos de mosaico para cada uma das suas divisões. As ruínas dessa *villa* cujos revestimentos foram removidos para sua salvaguarda, já não se encontram na margem do rio devido à acumulação progressiva de sedimentos na costa ao longo do último milénio. Hoje situa-se no meio duma área protegida, um frágil pântano salgado cujos principais visitantes são o gado que pasta no lodo e as diversas aves que nidificam e encontram alimento neste importante habitat.

Classificada como Monumento Nacional e parte integrante da Zona Especial de Conservação da Rede Natura 2000 (ICNB, 2006), a quinta é propriedade privada e a responsabilidade pela proteção das ruínas está a cargo duma complexa mistura de instituições locais e estatais. A história recente desta *villa* romana, desde a sua descoberta até à atualidade, põe em evidência o conflito existente entre os direitos inerentes à propriedade privada e os valores da conservação e preservação dos patrimónios cultural e natural.

A Quinta da Abicada localiza-se numa pequena península em forma de esporão com cerca de 250 hectares, e inclui no seu perímetro as zonas de sapal adjacentes e as áreas de tamponamento. Esta península pertence à freguesia da Mexilhoeira Grande, concelho de Portimão, entre as cidades de Portimão e Lagos. A Quinta da Abicada (ou simplesmente Abicada, como é vulgarmente referida) situa-se entre duas ribeiras, a do Farelo a oeste e a da Torre (também chamada Senhora da Fonte) a este, as quais desaguardam na ria de Alvor. Esta última foi classificada como zona húmida Ramsar e faz parte dos locais protegidos da Rede Natura 2000, que reconhece o importante papel desempenhado pelas zonas húmidas e habitats associados. Este território é uma importante zona de nidificação e abrigo para as aves migratórias e está sujeito a diversos constrangimentos e pressões nomeadamente o desenvolvimento urbanístico, a poluição das águas e o sobrepastoreio. Um estudo sobre habitats da Rede Natura 2000, datado de 2020, demonstrou que a Quinta da Abicada tinha a área mais extensa (67 hectares) de zona agrícola abandonada e de má qualidade do sapal devido ao sobrepastoreio, dentro duma zona de estudo nos 1454 hectares que constituem a zona da Ria de Alvor.

Nesta dissertação a Ria de Alvor foi considerada como uma paisagem cultural dada a existência da *villa* romana, os vestígios dum historial agrícola, e o processo de transformação da paisagem ao longo dos tempos através da construção de diques, drenagem das águas e uso de sistemas de irrigação

### **.OBJECTIVOS**

Esta dissertação tem por objetivo analisar alternativas futuras para o local, tendo em conta os desafios apresentados pela necessidade combinada de proteção e de dar visibilidade pública a uma paisagem ecologicamente sensível e culturalmente muito relevante.

## ESTRUTURA DA PRESENTE DISSERTAÇÃO

A presente dissertação está dividida em seis capítulos, concluindo com um uma proposta da sua eventual abertura ao público no sexto capítulo.

O segunda capítulo desta dissertação debruça-se sobre o assentamento, escavação e documentação da Villa Romana da Abicada que teve o seu florescimento entre os séculos I e V DC - devido à sua posição estratégica numa zona abrigada do estuário, rico em recursos marinhos.

A *villa* marítima, escavada pela primeira vez em 1938 por José Formosinho (Formosinho, 1942) foi classificada como Monumento Nacional em 1940 (Monumento Nacional, Decreto nº 30 762 de 26 de Setembro, 1940, posteriormente alterado pelo Decreto nº 35 817 de Agosto de 1946). A escavação do sítio arqueológico não foi concluída na altura, e os elaborados pavimentos de mosaico foram removidos por motivos relacionados com a sua segurança e preservação. O Estado Português é proprietário apenas da área das ruínas e zona imediatamente circundante (c. 2200 m<sup>2</sup>). O restante terreno é propriedade privada, fazendo com que o acesso, o estacionamento, e a possibilidade de novas escavações arqueológicas nas imediações fiquem seriamente dificultados. Este trabalho de investigação examina os desafios da escavação e da manutenção do local nos últimos cem anos, desde o momento da sua descoberta até ao seu estado atual.

A terceira capítulo da dissertação analisa a história do uso do solo na área da Quinta da Abicada, incluindo a evolução e transformação da ria e das ribeiras através do tempo. Embora existam vestígios de construção de diques a partir do século XVIII e de salinas ainda mais antigas nas redondezas, só a partir do início dos anos 50 do séc. XX é que a Quinta da Abicada foi estruturalmente modificada, com os trabalhos de desenvolvimento do Ministério da Agricultura. Foram construídos diques na quase totalidade das margens e uma barragem na ribeira da Torre, trabalhos estes que levaram a grandes alterações na morfologia das ribeiras e nas colónias vegetais ripícolas, nomeadamente pela perda de vastas áreas de sapal e sua apropriação para uso agrícola. Estas transformações resultaram num complexo mosaico composto por terrenos agrícolas, pomares, pântanos de água doce e de água salgada, baixos de maré, canais artificiais, áreas de transição com terrenos agrícolas abandonados, e canais obstruídos com lamas. Podemos encontrar vestígios destas modificações nos terrenos e cursos de água através do estudo da cartografia, dos orto mapas, das imagens de satélite e dos levantamentos feitos desde 1884 até aos nossos dias. O estudo destas transformações, visualizados aqui através duma série de diagramas simplificados, pode trazer luz ao processo de restauração dos sistemas, especialmente no que diz respeito aos cursos de água, sejam eles rios ou ribeiras.

A quarto capítulo desta investigação debruça-se sobre a gestão do sítio arqueológico, dentro duma zona ambientalmente sensível, e está dividida em duas secções: a) gestão dum sítio arqueológico e b) gestão dum local de proteção ambiental.

No que diz respeito à gestão, foi necessário encontrar a metodologia adequada que possa dar igual proteção tanto às descobertas arqueológicas com à própria paisagem. Preparar-se-á um plano de gestão cujo objetivo é implementar um programa de proteção, conservação, e abertura das ruínas romanas ao público, plano esse que deverá também incluir a interpretação do sítio e o usufruto da

paisagem circundante para fins recreativos e pedagógicos. Os métodos usados na secção A incidem sobre o estudo das tendências mais recentes na gestão do património, que incluem sistemas de valor sociais como sejam as questões económicas, ambientais e sociais (Avrami & Mason, 2019). Foram já realizadas entrevistas com um diretor de património cultural particularmente interessado no local da Abicada e também com um arqueólogo do Museu de Portimão, Rui Parreira e Vera Freitas. O seu conhecimento sobre as ruínas romanas da Abicada e as suas opiniões sobre os planos propostos ou desejáveis para o local serão incorporados nesta secção. Como resultado destas entrevistas, a questão prevalente foi a da reinstalação cautelosa dos pavimentos de mosaicos e a sua preservação. A construção de um abrigo para proteção dos mosaicos constitui o pré-requisito para a sua reinstalação, e por isso será avaliado o tipo de abrigo mais adequado, o seu impacto na paisagem e o conhecimento mais actual e internacional acerca da proteção de sítios romanos com chão de mosaico.

A secção B aprofunda a questão do habitat e da gestão do local com proteção ambiental. O sítio da Abicada está protegido - regimes legais do Ramsar, Natura 2000 e Reserva Ecológica Nacional - embora não haja uma ferramenta claramente identificável para a gestão de habitats em nenhum destes regimes jurídicos.

Existem diferentes fontes de informação sobre o atual estado ambiental da Abicada e arredores em relatórios, publicações, avaliações ambientais, estudos sobre espécies vegetais (flora), atividades das aves, estudos sobre moluscos, peixes e demais fauna. Todos os planos de longo prazo para as ruínas romanas incluem o turismo, logo é por isso importante fazer a avaliação de todos os fatores que poderão ter impacto sobre a capacidade de carga de visitação do local. Outros fatores de pressão incluem as alterações climáticas e consequente subida, do nível das águas, o sobrepasto e as ameaças à fauna selvagem e à vegetação. A sobrevivência do habitat sapal é fulcral face à necessidade de resiliência crescente provocada pelas mudanças climáticas face a eventuais futuras inundações.

A quinto parte desta investigação vai examinar a infraestrutura existente, circulação e zoneamento. Esta secção examina as alterações observadas na paisagem, na formação do sapal e em elementos como os canais de irrigação e os vestígios da história agrícola. Será compilado um catálogo fotográfico que porá em evidência os aspectos históricos na paisagem atual. Os métodos de análise centram-se em avaliações no local da área do projeto no seu estado atual. A área está dividida em seis zonas baseadas no habitat, na homogeneidade da paisagem e no uso dos solos. A análise foca-se nas questões do acesso ao local, nos trilhos, nas vistas, nas oportunidades para melhoria e na localização potencial dos equipamentos.

O último capítulo apresenta uma proposta final e recomendações de intervenções no local. O projeto final foi feito tendo em conta as questões de educação de públicos no que diz respeito às questões ligadas à arqueologia, à história e ao meio ambiente valorizando as atividades de lazer na natureza sem perturbações ao habitat ou à fauna.

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## ABBREVIATIONS

**ARBA** – Associação de Regantes e Beneficiários do Alvor / Association of Irrigators and Beneficiaries of Alvor

**CRT/ CRTA** - *Comissão Regional De Turismo Do Algarve* / Regional Commission for Tourism in the Algarve.

**DGEMN** - *Direção-Geral dos Edifícios e Monumentos Nacionais* / General Directorate for Buildings and National Monuments.

**DGPC** - *Direção-Geral do Património Cultural* / General Directorate for Cultural Patrimony.

**EEA** – Agência Europeia do Ambiente / European Environmental Agency

**ICOMOS** - Conselho Internacional dos Monumentos e Sítios / International Council on Monuments and Sites

**ICCROM** - Centro Internacional de Estudos para a Conservação e Restauro de Bens Culturais / International Centre for the Study of the Preservation and Restoration of Cultural Properties

**IPPAR** - *Instituto Português do Património Arquitectónico e Arqueológico's* / Portuguese Institute for Architectural Patrimony and Archeology

**IPPC** - Instituto Português do Património Cultural / Portuguese Institute for Cultural Heritage [Before 1993, a single agency, the IPPC, managed all cultural heritage in Portugal]

**IPA** - *Instituto Português de Arqueologia* / *Portuguese Institute for Archeology* [An autonomous agency for the Management of Archaeological Heritage]

**ICNF** - *Instituto da Conservação da Natureza e das Florestas* / Institute for Nature and Forest Conservation

**IDEALg** - *A Infraestrutura de Dados Espaciais do Algarve* / Infrastructure for spatial data for the Algarve.

**PDM** - *Plano Diretor Municipal* / Municipal Master Plan

**SIPA** - *Sistema de Informação para o Património Arquitectónico* / Information systems for Architectural Patrimony.

**SRAS** - *Serviço Regional de Arqueologia do Sul* / Regional Archaeological Service for the South.



# 1. INTRODUCTION

## 1.1 Problem Statement

Quinta da Abicada is a small peninsula with *circa* 250 hectares of land, wetland, and mudflats,<sup>1</sup> home to the eponymous Quinta da Abicada Roman Villa and located within an ecologically sensitive area protected by the Natura 2000 framework. The designation of the Ria de Alvor as a Ramsar Wetland site (RAMSAR, 1997) and a Natura 2000 Special Conservation Area (ICNB, 2006) acknowledges the important ecological role of these wetlands and associated habitats. The peninsula is an important nesting and shelter area for migratory birds (Scheres, 2004, Lings, 2005; RAMSAR, 1997) and has several protected habitats. The Alvor River is protected from the action of the ocean by a dune system and is therefore advantageous to the growth of young fish and their larvae, crustaceans and molluscs (ICNB, 2006). The Ria de Alvor is a meso-tidal estuary with the wetland in the River Torre considered a deltaic wetland (D. Almeida, 2016). In a 2020 mapping habitat study of the Ria de Alvor reserve, the site was noted as having an extensive area (67 ha.) of abandoned agricultural land and desiccated low-quality saltmarsh due to overgrazing. However, the pressure was noted as being “*easily reversible*” (ICNF, 2020, p. 43).

The ruins of the Roman maritime villa, excavated in 1938 (Formosinho, 1942) has been listed as a National Monument since 1940 (National Monument by Decree n.º 30 762 of September 26<sup>th</sup> 1940, later changed by Decree n.º 35 817 of August 20<sup>th</sup> 1946). The excavations were not completed at the time because of conflict with the owners, a fore-shadowing of the friction and contradiction between conservation and public use versus private land ownership. The area of the villa (2200 sq. metres) is owned by the State while the rest of the site is privately owned (almost 100 ha.), putting the site under pressure for development. There have been many attempts to initiate a programme of musealisation<sup>2</sup>, in this case preparing the archaeological site for presentation to the public (DGPC, 1995; Parreira, 1989; Varelo Gomes, 1986) yet the villa is still virtually unknown, with no clear access to the ruins. The villa’s mosaics, described as some of the finest in the Algarve, have been removed and are currently in the Museum of Portimão for restoration and safekeeping (Parreira IN Rodrigues, 2013). The intention is for the mosaics to be returned when there is a protective structure in place. There is a project proposed to enhance the site in conjunction with the government currently but information regarding the scope or feasibility of the proposal is not available at this time (Freitas, 2021).

This thesis discusses future alternatives for the site and the challenges of both protecting and allowing the visitation of a culturally relevant and ecologically sensitive landscape. The study researches past land use to understand better how the landscape was shaped, utilizing this knowledge to create a new

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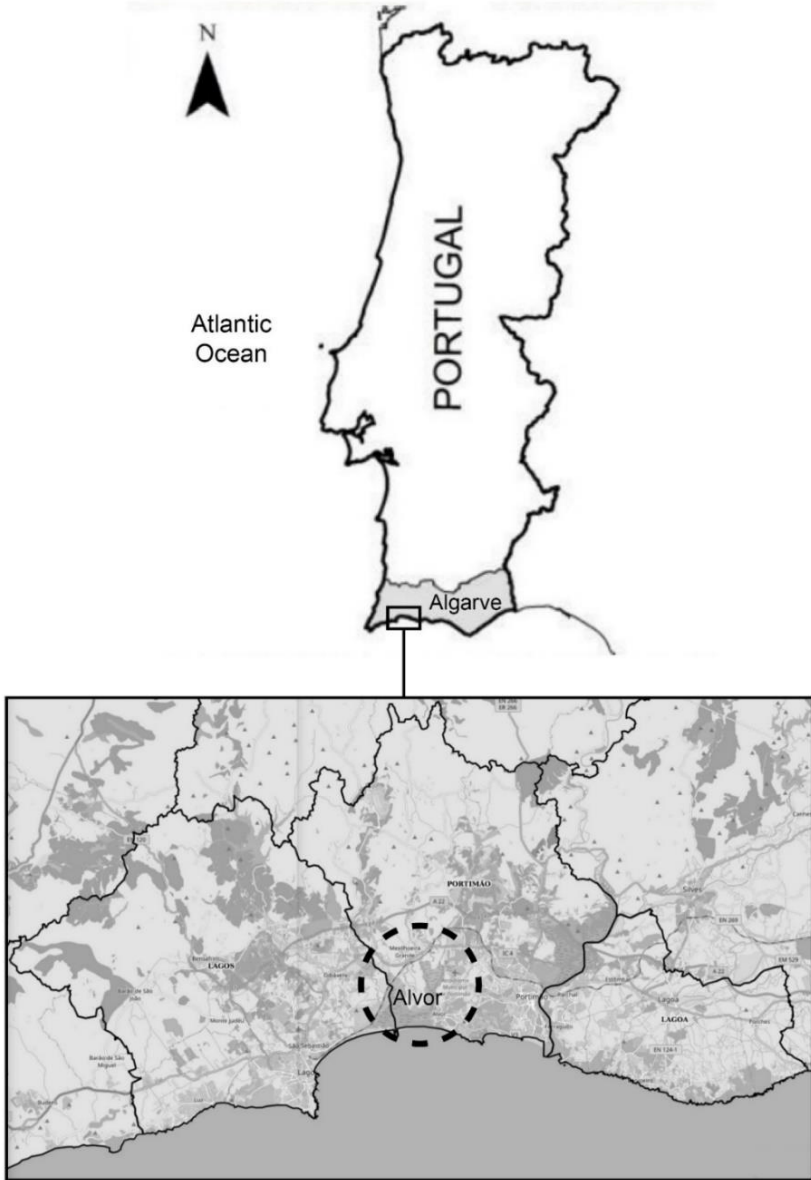
<sup>1</sup> The terrestrial area of the Quinta da Abicada with the boundary of the EN125 on the Northern end is 160 hectares. For this project I have extended the area to include the associated mudflats and salt marsh in the Farello stream and the Natura 2000 site limits to the East bringing it to a total of 250 hectares (see Fig. 2).

<sup>2</sup> The use of the portuguese word “musealização”, is frequently used as a goal for the archaeological site in reports. The meaning is not to turn it into a museum per se, but to open as a cultural centre with associated services. The English word musealization is seldom used except in cultural theory regarding heritage sites.

management plan for the area. The plan aspires to emphasise the historical and cultural significance of the site to enhance the visitor experience.

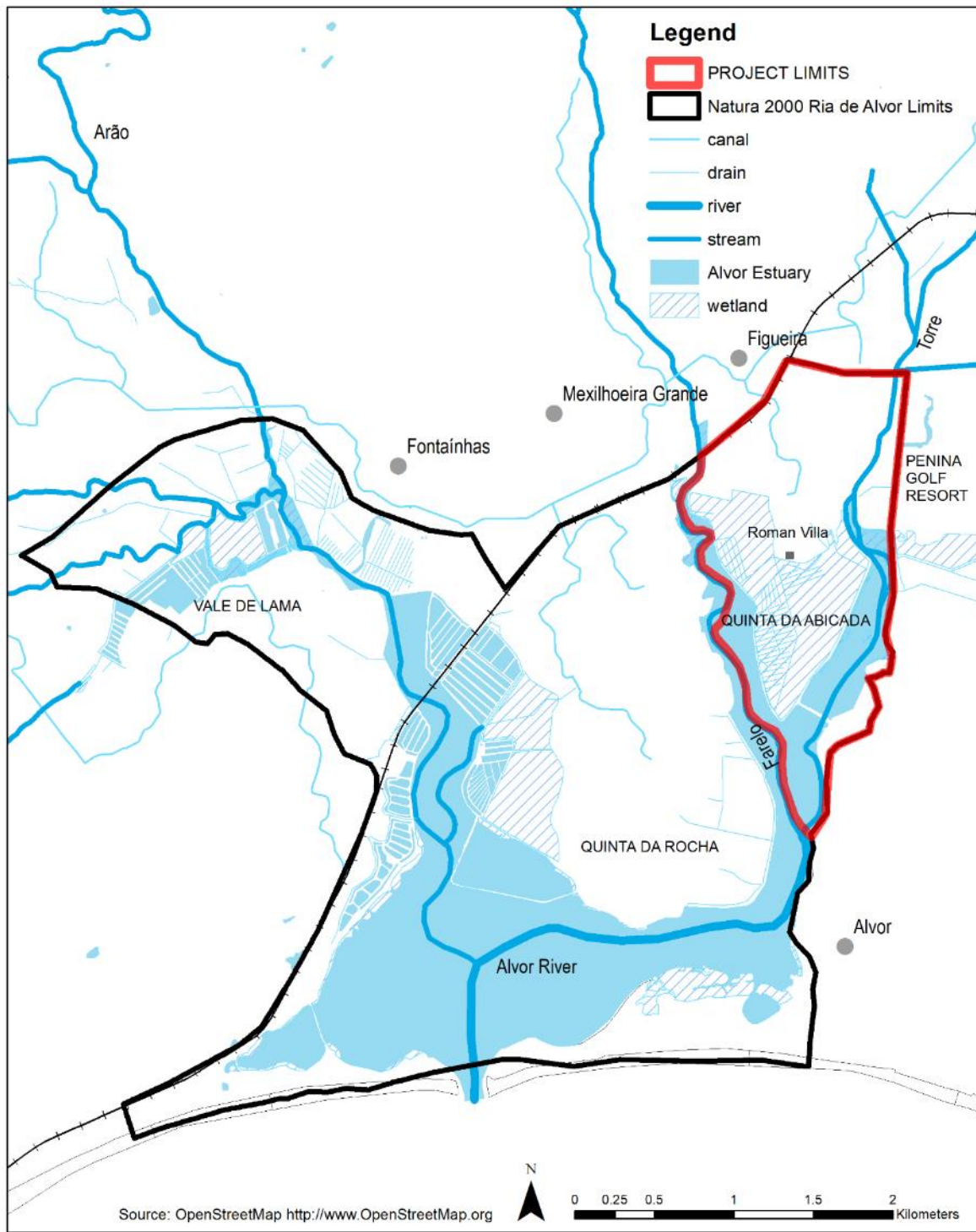
## 1.2 Site Location

The Abicada peninsula is in the Mexilhoeira Grande parish of the municipality of Portimão (fig. 1). It is almost equidistant between the towns of Portimão and Lagos (7 and 8 km respectively). The peninsula is bordered by two streams, the Farello on the west side and the Torre (also called Senhora da Monte) on the east which both flow into the Alvor river. The site boundaries for this project coincide with the Farello stream on the West and the site limits of the Natura 2000 Network boundary to the East and North (fig. 2). The River Torre was dammed in 1960 causing changes in the morphology of the streams and plant communities (D. Almeida, 2014).



**Fig. 1:** site location of Alvor River watershed, Algarve, Portugal

### 1.3 Project Limits



**Fig 2:** Project limits within the Rio de Alvor Natura 2000 boundaries showing the Hydrological System

## 1.4 Pre-history and Roman Occupation

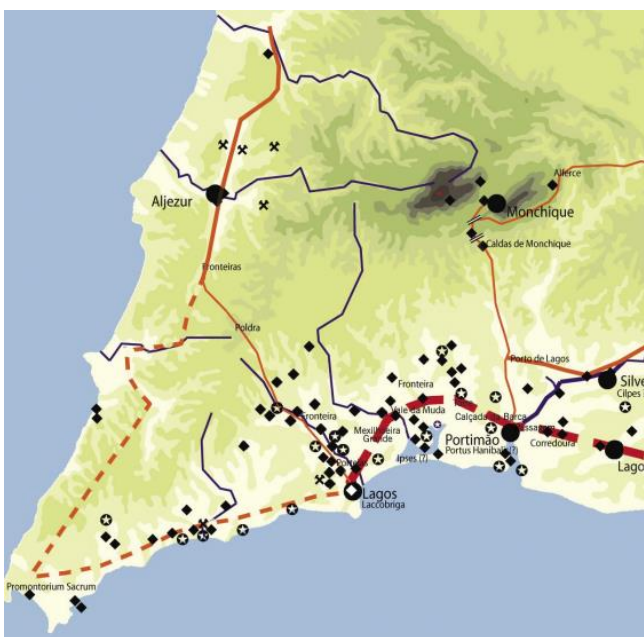
Archaeological excavations establish that the Ria de Alvor estuary and watershed have been inhabited since the iron age (Arruda, 1997; Fabião, 1993; Gamito, 1997). These historical archaeological findings have been confirmed with modern geo-archaeological methods used to study changes in Portuguese estuaries during the Holocene period. They show an agglomeration of settlements running along the Farelo and Torre Rivers from Neolithic through to Roman times (Teichner *et al.*, 2014). From paleogeographic studies and geological surveys, researchers have inferred the presence of a maritime bay (fig. 5) dating from 6500 BP, reaching much further inland and corresponding to the Alvor river system and its tributaries Farelo and Torre (Morán, 2001). The River Torre which flanks the peninsula on the eastern side, was navigable at this time linking the Alvor river area to an important Copper Age settlement centre called Alcalar 5 km north of Quinta da Abicada. This site was occupied at the end of the 4<sup>th</sup> to the 3<sup>rd</sup> Century BC and is the only other National Monument in the Portimão municipality. The stretch from the mouth of the river to the end of the Torre river has been referred to as a “power centre” of the territory resulting from extensive studies done in the region (Moran & Parreira, 2003, p. 307). Today the river Torre exists in a much-diminished form, running between Abicada and the Penina golf course, with major water damming and dyking taking place in the late 1950s. The interpretive centre of Alcalar and Abicada Roman ruins are both under the management of the Municipality of Portimão, (of which the museum is a part). The location of Quinta da Abicada, on the confluence of 2 rivers, 7 kms from Portimão, 10 from Lagos (popular trading ports in Roman times), gave the villa an advantageous location regarding marine resources, trading and transportation (fig. 6) (Ataíde, 1906; Mantas, 2016; Teichner, 2018). Geological surveys from fieldwork in 1999 by the company Posselt & Zickgraf discovered a wall line at the edge of where the salt marsh begins, showing traces of a small harbour (Teichner, 2008). The surveys demonstrated that the water level in Roman times was much higher, and the villa had direct access to the estuary. During the Roman period, the Algarve territory exploited many different resources, both marine and agricultural, such as fish preserves, wine and oil (Mantas, 2016). The Roman period was also blessed with a generally gentle climate between 250 BC and 450 A.C, this is considered a factor to understand the material prosperity of the time (Aguiar & Pinto, 2007).



**Fig 5:** Map of coastline reconstruction of the Paleo-Lagoon shows Quinta da Abicada at the edge of the river.

Adapted by L. Kearney 2021 from data source:  
 Luis da Silva 2005/10  
 source: luisfraga@arqueotavira.com  
 coastline reconstruction  
[https://de.wikipedia.org/wiki/Abicada#/media/Datei:Paleo-lagoon\\_abicada.png](https://de.wikipedia.org/wiki/Abicada#/media/Datei:Paleo-lagoon_abicada.png)

- level curves 10m
- Paleo-Lagoon. Reconstruction of extreme limits in Antiquity
- Ria da Alvor estuary and Farelo, Torre and Arão streams



- ◆ Sítio romano
- ⊙ Villa romana
- ⊗ Sítio mineiro romano
- Troço de calçada
- ⊥ Marco Milário
- Troço confirmado
- - - Troço provável
- Via secundária

**Fig. 6:** Roman roads of the Algarve IN (S. Rodrigues, 2004, p. 74)

## 1.5 Study Area

The Abicada land spur is encompassed by raised earthen banks running along most of the southern part (fig. 3). It is not known when the first dykes and drains were built on the site, but the current raised earthen walls and walkways were built in the late 1950s to restrict the flooding of the seawater to the rice fields and abandoned in the late 1960s (Almeida, 2014; Pullan, 1988). These transformations have resulted in a complex mosaic of agricultural land, salt and freshwater marshland, tidal flats, manmade canals, abandoned and recolonised agricultural land, agrarian artefacts and earthen dykes. The visible patterns of anthropomorphic interventions are tied to the history and tradition of changing land and water use and the management of those resources. Abicada has escaped development and individual housing for the most part with approx. 10-15 houses, greenhouses and warehouses concentrated at the northern end of the site. This is a result of the private ownership of almost 100 hectares of the terrestrial project area.

The Roman villa ruins are sited on a southwesterly slope with panoramic views of the estuary and saltmarsh with the town of Alvor visible to the east. There have been archaeological findings showing evidence of a settlement in the Alvor hills called Vila Velha from at least the 4<sup>th</sup> century BC which probably became the Roman town of *Ipsis* (Arruda, 2006; Gamito, 1997). The site was most dramatically altered by the agricultural development works in the 20<sup>th</sup> century, though the management of land and water resources are evident since the first human settlements. For this reason, the saltmarsh habitat and landscape modifications are culturally twinned with the Quinta da Abicada Roman maritime villa and should be considered together as part of a cultural landscape that requires a management plan and public awareness of its importance.



**Fig 3:** Drone image looking south at Abicada land spur, image: Lopes, 2021

## 1.6 Objective of the Study

The objective of the study is to examine future possibilities for the design and management of the site, aiming to ensure both the protection of cultural and natural heritage while allowing its visitation. The thesis also aims to add to the current body of knowledge regarding the story of the maritime villa of Quinta da Abicada from discovery to its current status. A monograph of Abicada written in 2008, (Teichner, 2008) is still only available in German and Spanish. This study researches past land use to understand how the landscape was shaped, utilizing this knowledge to inform design and restoration or rehabilitation. The final proposal would ensure “the protection, conservation and presentation” (Varelo Gomes, 1986) of the archaeological heritage in tandem with the protection of the surrounding salt marsh and other plant communities for sustainable cultural tourism, recreation and educational purposes (fig. 4).

## 1.7 Approach to the Quinta Da Abicada Cultural Landscape

The Cultural landscape in this thesis refers to the historical man-made landscape overlaid and influencing the natural features and habitats, explored through the documents, photographic material, maps and studies that constitute the current body of knowledge of the area (fig. 4). The third component, education signifies the goal of raising the profile of Abicada to publicise and educate the public of its intrinsic value.

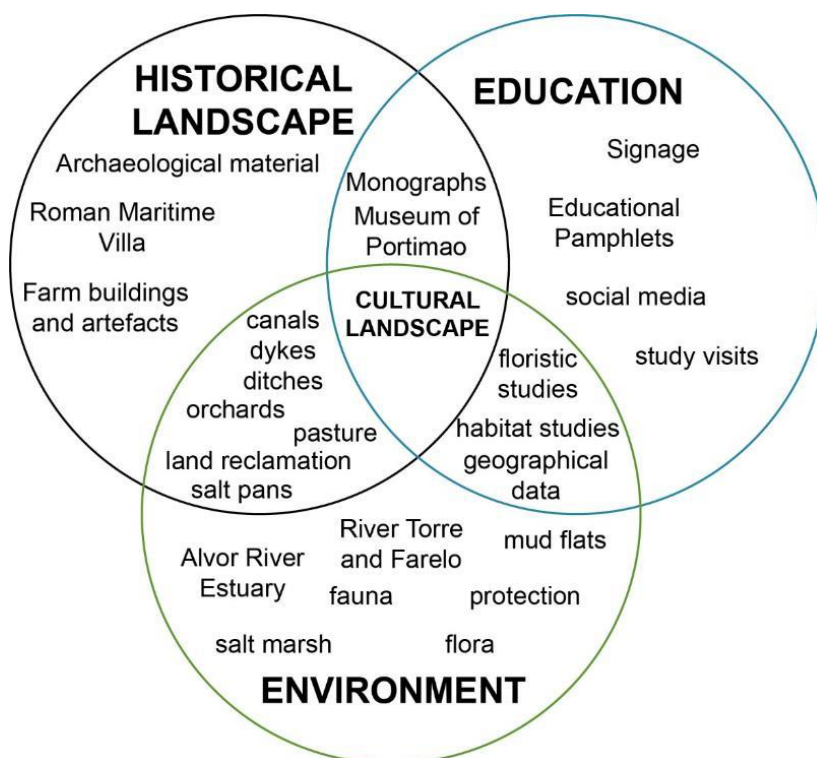


Fig 4: Venn diagram of approach to the cultural landscape of Abicada

## 1.8 Methods

According to article 9 of the UNESCO Charter of Krakow 2000, *“The integration of cultural landscape conservation, and the sustainable development of regions and localities with ecological activities, and the natural environment require awareness and understanding of the relationships over time.”* The examination of landscape history is achieved through:

- Examination of historical documents and research looking at the history of settlement, land use and ownership of the area of Quinta da Abicada, the estuary of the Alvor river and the parish of Mexilhoeira Grande including the history of the discovery, excavation, subsequent studies and correspondence regarding the Roman maritime villa;
- Examination of orthophotography and maps from the 20<sup>th</sup> century illustrates the land changes created by water modifications such as dyking, the building of canals, irrigation, draining and reclaiming of the salt marsh for agriculture, following the work of Costa and Almeida (A. C. Almeida et al., 2012; D. Almeida, 2014; D. Almeida et al., 2013) resulting in a series of chronological comparative diagrams;
- Cataloguing through photography views, habitat and the architectural and agrarian artefacts on site. Analysis of reports and theses (available from 1988) on the natural environment of Quinta da Abicada, to study the flora and fauna of the peninsula and its possibility for passive restoration (D. Almeida, 2016; ICNF, 2020; Pullan, 1988; Rolo, 2007; Scheres, 2005; Simonson, 2004);
- Review approaches to heritage management and cultural landscape conservation;
- Site analysis examining possibilities for future visitors looking at access, circulation, transportation etc. Creation of a management plan and design for the Quinta da Abicada site while respecting the principles of the Natura 2000 Network.

## 2. HISTORY OF SETTLEMENT, EXCAVATION AND DOCUMENTATION OF THE ABICADA MARITIME ROMAN VILLA

The history of the discovery and excavation of the maritime Roman villa at Abicada and the efforts to preserve and promote the site stretches over 100 years and is yet to be resolved. The villa at Quinta da Abicada, little heard of by the general public, has been studied and championed by many illustrious names in the world of Portuguese archaeology over the century. The vicissitudes of the villa also encapsulate broader issues such as the conflict between landscape conservation, both natural and cultural, and the interests of private land ownership. I intend to present only a brief review of the study of the architecture and mosaics which have been described so thoroughly, (Formosinho, 1942; Santos, 1971; Teichner, 2008; Viana et al., 1953) and will concentrate on the history of the site, especially the interventions and intentions for the site from discovery to current times.

### 2.1 Discovery and Excavation

The first published account of the Quinta da Abicada villa was by José Leite de Vasconcelos from 1918, published in, "O Arqueólogo Português" the periodical magazine of the National Museum of Archeology (Vasconcelos, 1918). Vasconcelos made a short stop-off while travelling across the Algarve looking at notable sites for the museum. He reported finding roof tiles, foundation walls, some small artefacts and floor mosaics. Interestingly, he was already concerned with the protection of the site noting with approval that the site was protected with fencing.<sup>3</sup> In a later journal, (Viana *et al.*, 1953), it is noted that Estácio da Veiga, founding father of archaeology in the Algarve, had mentioned pre-roman fish salting tanks such as *cetariae* at that location (Kremer, 2007; Veiga, 1910). Interested in Vasconcelos findings, José Formosinho, a local notary from Lagos and an archaeology enthusiast, visited the site in 1930 (Formosinho, 1941). He returned several times over the next few years, bringing back whatever artefacts he could to the museum he founded in Lagos (*ibid*). He discovered the mosaics uncovered and deteriorating, prompting his attempt to secure funding for a full excavation.

The excavation began in 1938, fully described by Formosinho in a journal published in 1941 followed by other publications over the years (Formosinho, 1942; Kremer, 2007; Santos, 1971; Viana et al., 1953). Diaries of Formosinho from this time were studied in detail for the 2008 monograph of the Villa (Teichner, 2008). However, this first excavation is the basis that all further studies were based on.

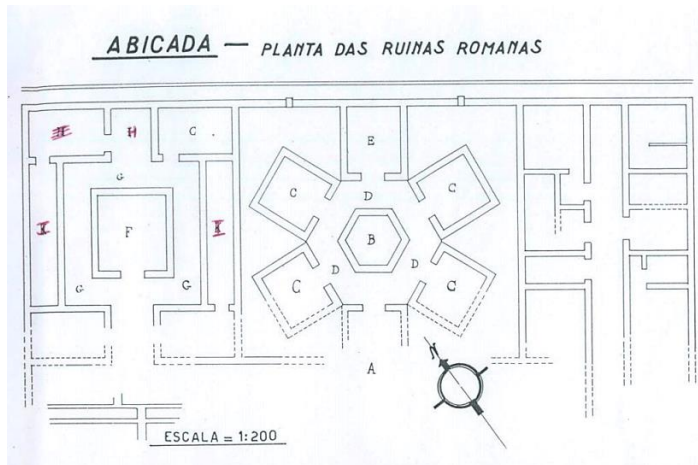
### 2.2 Floor plan: *Pars Urbana*

The *villa* was first described by Formosinho as a large palace, or villa, and the dimensions, (first described as 1,200 m<sup>2</sup>, then increased to 2,000 m<sup>2</sup> in later studies) along with the number of compartments were substantial. The building was formed by three distinct but connected areas (Formosinho, 1942) with more than 30 rooms. "I believe it is a '*villa*', a country house, by a rich patrician,

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<sup>3</sup> "O Senhor Maravilhas teve a ótima ideia de formar em volta um recinto fechado que o resguarda completamente. Este exemplo pode servir de lição as camaras que, por nao praticaram actos semelhantes, deixam perder dois curiosos santuarios da epoca lusitano-romana."(Vasconcelos, 1918, p. 128)

that is, an aristocratic residence, as I do not believe that any commoner could have afforded to own such a large house with so many mosaics"<sup>4</sup> (ibid, p. 107). The south wall of the building was destroyed but he calculated the maximum width to be about 28 metres and 54 in length.



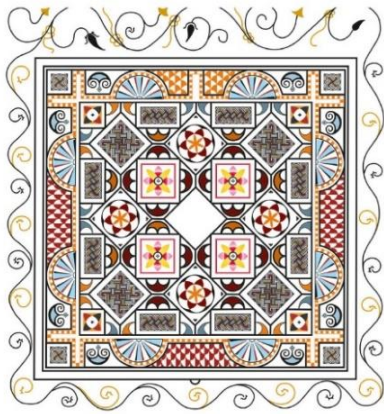
**Fig 7.** Floor plan by Formosinho. 1942

The middle section was centred around a hexagonal structure with rooms radiating from this central point (fig. 7). The final section to the east was understood to be the servant's quarters and kitchen wing. At the north of the building, there was a wall that appeared to have served as an aqueduct to bring water into the building. Formosinho could distinguish the vestiges of frescos paintings on the walls and brought back some small samples to the Lagos Museum in colours of red, yellow and terracotta. He concluded that some of the walls were from earlier phases of the villa, which had been redesigned maybe several times. He also noted the existence of a corridor leading south 20 metres down the slope to the "*pars rustica*" area of the villa, though this is not included on his floor plan. He also does not include the portico or covered corridor which connects the three areas along the southern face. The descriptions of the villa will be updated over the years as further information comes to light.

## 2.3 Mosaics

Although impressed with the scope of the building, Formosinho is most effusive regarding the diversity and beauty of the mosaics (figures 8 and 9). "*The diversity of its design and colour make it almost impossible to describe; as a carpet that completely covers the floor*" (ibid, p.109). He concluded that they dated from a construction period of III or IV century D.C. Maria Duran Kremer, first involved in the documentation and conservation work of the pavements in 1993, later published a study of the mosaics where she praises the unity, perfection of themes and symmetry of the decoration (2007). More detailed drawings and coloured rendering are produced for the monograph in 2008. There is a large repository of photography with the DGPC of the mosaics *in situ* over the years in varying states of deterioration.

<sup>4</sup> "*Pela sua extensão julgo tratar-se de uma "Villa", casa de campo, de patrício rico, isto é, uma residência aristocrática, pois não creio que qualquer plebeu tivesse podido dar-se ao luxo de possuir uma casa tão grande e com tantos mosaicos*" (Formosinho, 1942, p. 107).



**Fig. 8:** Mosaic floor in Room A3 of the Villa Maritima of Abicada (Teichner & Romero, 2018)



**Fig. 9:** 1942 Photo of mosaic floor in Room 3 before removal, source: SIPA photo archive, 2021

## 2.4 Pars Rustica



**Fig 10:** Formosinho at the salting tanks, Abicada, before destruction, (source: Formisinho, 1997, p. 61)

Much less is known about the scope of the agrarian resources for the villa, whether the villa owners owned extensive lands or concentrated solely on marine resources. Traditionally alluvial river plains provided rich soils for agriculture. The peninsula itself was narrow with the sea to the south and a large lagoon stretching to the east (fig.5). Abundant seafood would have been and remains of shellfish, mussels and clams were found during the 1938 excavations. Abicada is located in the parish of Mexilhoeira Grande, the name stemming from the word for mussels *Mexilhão*, where bivalve collecting has been part of the rich maritime heritage and prosperity of the area.

According to Fabião (1993, 1997), the opulent villas of the Algarve coast exploited complementary resources from both the land and sea, using the same labour force for both farming and marine exploration and preparation. It is also possible that both jobs were

seasonal. Unfortunately, the main clues for the '*pars rustica*' were destroyed by the owner in 1939. This area uncovered in the excavations, 20 metres southwest of the villa at the edge of the historical

waterline, consisted of two large tanks covered in roman waterproofed cement, opus signinum (fig. 10). The tanks were documented and photographed at the time (Formosinho, 1942) This area has been much debated as it gives the only clue to the economic basis of this opulent villa. Formosinho himself did not resolve the usage of the tanks at the time, calling them, ruins of a <sup>5</sup> “wine cellar or wine press or salting tanks” (ibid). In the work of Fabião (1993, 1997) on the production of “Garum”, the roman fish sauce produced and exported from the Algarve, he doesn’t include Abicada in the list of villas along the Algarvian coast involved in this production for export. However, in Teichner’s extensive monograph on Abicada, (Teichner, 2008) he concluded that the location of the tanks next to the water shore would logically point to seafood preparation (Teichner, 2008, p. 534). This area was connected via a corridor running along the west side of the main building. He also argues that according to the Roman agricultural writers, the usual location of a “*laga*” or “*adega*” would be on higher dry areas, again pointing to the likely use of the tanks for salting fish and/or garum production (Teichner, 2008, p. 987). *Amphorae* (terracotta roman transport jars) from the period 1<sup>st</sup> to the 5<sup>th</sup> century, found in the Ria de Alvor estuary, show 80% carried fish products, 10% oil and 10% wine (Avelino, 2015, p. 138). Although Quinta da Abicada was not the only roman habitation trading in the estuary, this work gives an overview of what was exported and traded locally in Roman times.

Teichner’s study of Abicada discussed the underlying economics of the site, considering that the natural lagoon and port facility were the most likely available and advantageous resources (Teichner, 2008, p. 52). In the article from Viana, Formosinho and Ferreira (1953), they describe it as “*a great luxury villa, maintained, however, by the earnings from agriculture and above all, fishing.*” There have also been more recent discoveries showing the location of other salting tanks close to the site, for example on the other side of the Farelo river at Quinta da Rocha and Lameira (Teichner, 2008 fig. 242). Whether the landowners of the villa harvested salt in local salt pans known as *salinas* is unknown. The creation of *salinas* usually in estuaries, dyking areas for the cultivation of salt, was also popular in Roman times. Salt was an expensive commodity, and this tradition is still evident in the greater Alvor area. According to documents sourced by Estácio da Veiga, the Romans found large establishments of salt pans in Alvor when they arrived and maintained them (Ataide, 1906, p. 53). It is difficult to establish the chronology of the tradition of salt panning in the Alvor region, other than concluding that fish and food preserves also depended on reserves of salt.

Finally, the designation of the villa as a maritime villa is strongly based on its unusual architecture which conformed to that of other maritime villas of the period (Teichner, 2007, 2008, 2016). The linear building sections connected by a columned open corridor or portico, sited on a hillside at the edge of a lagoon, is a well-known architectural typology from the Italian peninsula (Teichner, 2008, p. 660). The building was redesigned over the centuries, with many of the original walls being reused and modified yet the integral design was not compromised and stayed as a singular architectural symmetrical unit, albeit in three parts. The unusual architecture deserving of the title maritime villa makes it unique in the “Lusitania” area (Teichner, 2008, p. 626).

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<sup>5</sup> “ruínas de uma adega, lagar ou simplesmente tanques de salga, com os seus tinós revestidos de opus signinum, o tal cimento que Estácio da Veiga, muito justamente, *julga pré-romano...*”.

The debate on fish production raises the question of whether land use and ownership transformed along with the redesigns in architecture. The villa was inhabited for over five centuries and was reconfigured in phases. According to Teichner, the original building was “a rural settlement of the early imperial period, as yet unknown in terms of structure and dimensions but more modest, developed during the Tetrarchy into an imposing villa maritima.” (2016, p.:244). Missing from the debate perhaps, is that the land use could change over time, with different owners, areas of land ownership or economic circumstances, starting with settlers of modest incomes or small farm production and fishing then ending with wealthy Romans and salting tanks for fish.

In the 2008 monograph, Teichner asserts that “In the immediate vicinity of Abicada, there are no large agricultural areas available” (2016, p. 246) and as a result, the sole income of the villa comes from the sea. That depends however on the area of the land that is included as often wealthy Roman landowners owned land beyond the immediate vicinity of the villa. Approximately 1km north of the site there are substantial areas of *hortas* and orchards (from at least the beginning of the 20<sup>th</sup> century) that were not part of the paleo-lagoon. On the neighbouring Quinta da Rocha, where numerous Roman vestiges have been found but no *villa*, there is flat, fertile land. Understanding the scope of the ‘Quinta’ if indeed there were agricultural lands, vineyards or orchards, would be an important further study to add to the body of work on the area, perhaps taking core samples to study the microfossils and seed bank on the peninsula. Unfortunately, this is outside of the scope of this work at present. We do however know that the Romans came to Lusitania with new technological agricultural skills, especially in irrigation and dyking. Many of the agricultural innovations imported by the Romans increased agricultural productivity. Their techniques specifically targeted difficult soils such as flood plains with advanced drainage and irrigation techniques, including complex systems of channels and ditches (such as the systems created in the 20<sup>th</sup> century) for drainage (Aguar & Pinto, 2007).

## 2.5 Genius Loci

What did not change over time was the idyllic location and the breathtaking beauty of the 180-degree views of the estuary. The wealthy owners outlaid substantial amounts to tile artisans to create the elaborate mosaics artwork (and we can presume frescos of similar quality) as well as hiring an architect to design such a well-proportioned house<sup>7</sup>, we should consider the possibility that they would also spend money and thought on landscaping. We shall presume that they had an appreciation for the beauty of their coastal surroundings and, like many other romantic Italian villas, the breathtaking views were a deciding factor in the location of the villa. The Romans had a strong belief, which had passed down from Greek culture, regarding the “Spirit of the Place” known as *genius loci*. This imbued the local landscape with its own spirit which guarded the site. the *Amoenitas* was also a concept that a place which was inherently pleasing to God and man was a sacred landscape (Hartswick, K., 2017).

## 2.6 The Roman Garden

In considering the possibilities for planting and landscaping in and around the villa it is useful to look at examples of Roman gardens at the time, especially planting adjacent to maritime villas as the “nature

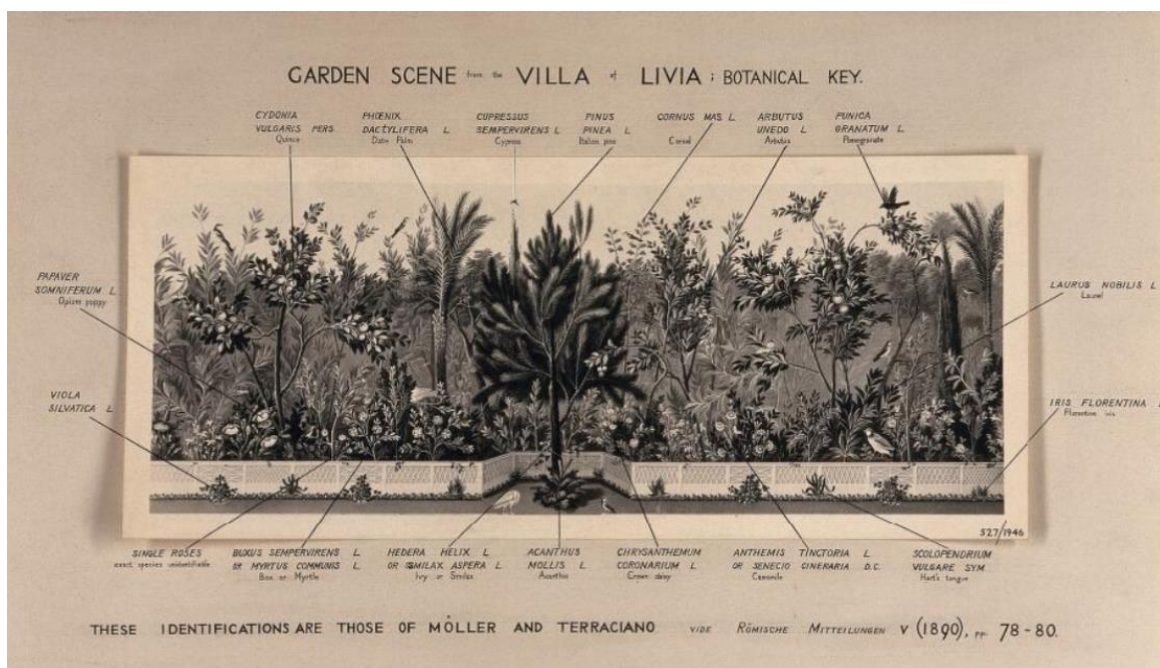
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<sup>7</sup> The building is presumed to have been designed by an architect based on its north to south symmetry of design, according to Rui Parreira (L. Kearney, personal communication, April 11, 2021).

view” was not a garden but the unobstructed view to the river or sea. Pliny the younger (61-113AD) wrote descriptive letters about the gardens at his *villas*. His maritime villa Laurentinum which was located along the coast is perhaps the most relevant although on a much larger scale than Abicada. He describes a “tree-garden” behind the building with box borders mixed with trees such as mulberry and figs, a vine plantation, a small meadow of violets that scent the portico and a kitchen garden. He discusses the issue of exposure to wind and sea foam to plants at the front of the house where “*box must be replaced by rosemary*” (Pliny, 1936). Although Abicada is in a sheltered estuary and is now far back from the water, the problem of wind and spray from brackish water could have affected planting decisions for areas closest to the waterline.

## 2.7 Plants

Although there are descriptions of plants and trees from Roman writers such as Pliny’s Natural History or the fourth- century Palladius, there is always the difficulty of changes in names without specific descriptions (Jashemski et al., 2017). Another source is Archaeobotany which is the study of the interaction of human and plants through analyzing ancient plant remains and has added to the body of knowledge of ancient gardens. It brings challenges however, for plant identification, as it is difficult to differentiate between remains that came as imported produce, either as plants or food, or whether grown locally (*ibid*). There has been no significant testing done on the Abicada site to date. Some ancient wall frescos have been helpful with shedding light on Roman plants such as from the *villa* of Livia near Rome shown below. (fig. 11). Some common trees and shrubs mentioned in Roman texts which are native or grown successfully in the Portuguese landscape are laurel, myrtle, pomegranate, oleander, quince, oak, cypress, yew, olive and vines.



**Fig 11.** Reproduction of the Garden scene from the villa of Livia with botanical key. Identifications by Möller and Terraciano vide *Römische mitteilungen* V (1890), pp. 78-80

## 2.8 Gardens and planting at Abicada

There is unfortunately little evidence left on the existence of gardens or *hortas* adjacent to the property. In the *pars urbana* section A, all the rooms had mosaic floors except for the A4 and A7 rectangular room areas (shown in green), where soil residues are found. It was concluded that these areas were probably ornamental gardens, though not accessible could be viewed from the corridor A5 (Brühlmann & Teichner, 2020). Similarly, in the spaces surrounding the cubicles B1 and B2, radiating from the central hexagon, these areas were open spaces, possible garden areas though not accessible. These areas could have been irrigated by lead piping found in the back wall. The main central hexagonal area was a columned water feature as is often seen in Roman villas. (fig. 12)



Fig.12: updated general plan realized after a new topographical survey developed by the Department of Geodesy at the Technical University of Munich, N. Schwartz/F. Teichner, Frankfurt University IN : (Teichner, 2007)

Beyond these interior spaces it is interesting to note that the villa was built on a small slope where the remains of artificial terracing can still be seen in the topography (see Appendix A, Figure 8). The first terrace would have been close to water level and was the location of the now destroyed salting tanks for *garum* production. The second terrace corresponds with the portico of the building and lastly the highest terrace was approximately about 10 m above sea level. (Brühlmann & Teichner, 2020). These types of terraces, directly next to the *pars urbana* would often have been planted in early rural productive *villas* with olives, grape vines or fruit trees and in later wealthier *villas* with more ornamental plants and trees. There are two hypothesis for tree planting at Abicada shown below (fig. 13), (A) is shown without trees in the interior spaces of B1 and B2, and (B) is shown with tall, skinny Cypresses in the interior spaces. By adding these tall trees, a green area or focal point could be created which would be visible when the *villa* was approached from the water (Brühlmann & Teichner, 2020). It is also possible that there was a “tree-garden” behind the house like some other maritime villas, which also had the benefit of supplying fuel. There are agricultural terraces on the Northeastern slopes (fig. 56) behind the villa from the 20<sup>th</sup> century which could have replaced terracing from ancient times.



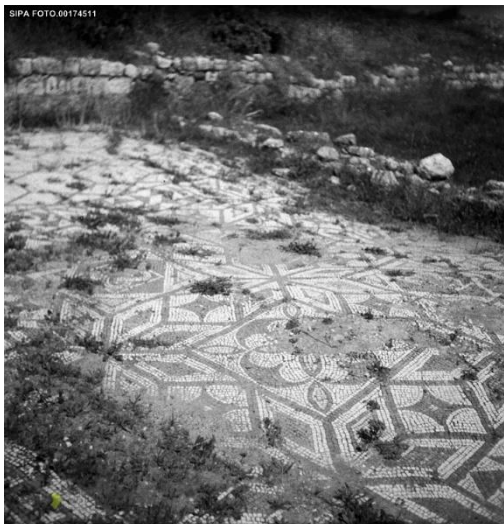
Fig. 13: Villa de Abicada, reconstruction proposal (Leonie Eckert and Katja Bieber (University of Marburg) in (Brühlmann & Teichner, 2020)

## 2.9 End of Excavation: *A Bem da Nação*- For the good of the Nation

Jose Formosinhos's excavations came to an end in March 1939, when the landowners destroyed the salting tanks and the "adega" to build a well, filling the area with rubble. This was done despite a weekly fee paid to the landowner at the time, (Severo Ramos, a factory owner of conserves and dried fruits from Portimão) (Formosinho, 1997). In a journal article where Formosinho's son writes about his father's work, he states that the landowners began to understand the quality of the findings of the site that were being uncovered and his intentions, "*knowing it could be built into a very interesting study station for archaeology, but even from a tourist point of view*" and this led to their threat to destroy the entire site and halt further explorations (*ibid*). There was a delay before the site was classified as a National Monument (Formosinho, 1997; Kremer, 2007) which caused great frustration for Formosinho.. Formosinho pleaded with the Monument Agency, "*All will be destroyed; they are planting sweet potatoes*" (Formosinho, 1939). Although accounts of this period suggest that excavations ended in March 1939, in the repository of documents pertaining to the site by the DGPC, there are references to payments to local firms for excavations in 1942 . In a later journal article, (Viana et al., 1953) there is a reference to artefacts left behind at the unfinished excavation, such as bricks, *teguas* (mosaic parts), painted plaster, glass and ceramic and lead pipes among other items, left behind with a view to reconstruction. The delays and the problems with the owners, "*resulted in the destruction of a monument that, of its kind, was one of the most remarkable in the Peninsula*" (*ibid*). Formosinho despaired that by leaving everything uncovered it would not survive to be able to be admired by "*nationals and foreigners for the glory of the Algarve*" (1942). Formosinho wrote a letter to the Director-General of Public Finance in 1945 stating, "*I, however, must no longer think of Abicada: one of the greatest sorrows of my life was to have discovered it*" (Formosinho, 1997). In 1953, the findings from the Quinta were published in the *Archivo Español de Arqueología* (Viana et al., 1953). The next mention of Abicada are in essays printed in 1968 by Manuela Delgado and Jorge de Alarcão (Alarcão, 1968; Delgado, 1968; IN Teichner, 2008, p. :496).

## 2.10 The 1960s to the 1970s

In 1967 almost all of the land at Abicada (approx. 100 hectares) is sold to Aquazul, a property development company that bought several large plots of land in the Algarve region during this period. The sale of purchase describes the agricultural buildings and type of land but there is no mention of the archaeological site (see Appendix B, fig. 9). By 1970, Villa da Abicada was mostly abandoned, though it was reported to have signage referring to its status as a National Monument at its entrance (Santos, 1971). Maria Luísa Estácio da Veiga dos Santos, (granddaughter of Estácio da Veiga) writes in the *Journal Roman Archeology of the Algarve*, describing damage to the site and destruction of walls and compartments carried out by the owners and/or vandalism from visitors. She reports that visitors could take small artefacts as keepsakes altering irrevocably the appearance of the site (*ibid*). At this time, she could still observe the flattened debris from the salting tanks. A push is made at last to purchase the land for the state from the owners Aquazul. On the 26th of May, 1977, an area of 2,100 m<sup>2</sup> was sold to the Portuguese State for 157,500 escudos (about 780 euros) (SIPA 1976). This area does not include the "*pars rustica*" or corridor D. the area leading to the destroyed salting tanks. In the following months, works are carried out to fence the entire site.



**Fig. 12:** 1976 image showing plant growth destroying the tesserae, SIPA photo archive, 2021

## 2.11 1980s to the 1990s

In 1986 the couple, Rosa and Mário Varelo Gomes were sent by IPPC to report on the state of the site. Their work concluded after a week and the report is damning (Varelo Gomes, 1986). Many of their recommendations are relevant to the site today. They note that there is no signage to the ruins either from the main road or the smaller roads. A guard paid to supervise the site by the CRT (*Comissão Regional De Turismo*) was never present. They note that a garden was cultivated by the guard on the site. These plants and their root systems degraded the ruins with some of the new earth for the *horta* burying structures. The thick covering of weeds in all the compartments of the ruins made it indistinguishable from its surrounding which caused a serious deterioration to the

*tesserae*. They proposed a programme of works to recuperate, conserve, and publicize the site. Although some recommendations were realised, some took another 15 years and most are still not fulfilled. The abridged report is available in Appendix C with a comparison of what was proposed and o the current state of repairs.

In the years 1987 and 1998 several conservation works were carried out by SRAS (*Serviço Regional de Arqueologia do Sul*) (Parreira, 1989). In 1987, the mosaics of Abicada and another site at Boco do Rio, (a coastal roman site about 20 km west of the villa), were studied and published by José Maria Blázquez (1994) (Teichner & Romero, 2018). The recommendations from the Varelo-Gomes report were then elaborated in a new proposal in 1998, produced by Rui Parreira (IPPAR) to safeguard and rehabilitate the site. Yet again, alarm signals are sent to the relevant state authorities that action should be taken at the site immediately. There are also many strategies from the report that are relevant to today.

The main objectives outlined were:

- Geo-archaeological surveys in the area surrounding the ruins to identify the boundaries of the archaeological site and paleogeographic area with remote sensing.
- Define the boundary to the classified area on the cadastral maps.
- Collect all the documentation and artefacts from the site and have them treated with care.
- Reevaluate the conservation methods used previously and address questions raised.
- Prevent aggressions (we presume by the owners) related to the surrounding archaeological area and in the area adjacent to the ruins, including the demolition of clandestine buildings.
- Conserve and restore archaeological structures per internationally accepted concepts and practices.

- Improve access; create directional and informational signage; technically support permanent musealisation of the site.
- Promote cultural outreach aimed at users interested in archaeology.

Many issues have arisen from the delineation of boundaries around the site. With further knowledge and more modern techniques of surveying, it became clear that the original boundaries set in the land sale were not sufficient. A goal not yet achieved is to confirm that the site extends beyond its current limits. It is mentioned that the Câmara Municipal de Portimão implemented signposts to guide users from the National road and they were waiting for placement. Currently, in 2022, there is no signage to the site.

There is a distinctly new participatory approach in this new report, with mention of *“promoting the participation and integration of communities in the surrounding area and potential users”*. For the first time, the surrounding landscape is mentioned as a factor as *“the cultural and **natural** heritage of the area”*. There is also the first mention of *“the installation of a **protection structure**, according to an architectural project that, in the case of Abicada, should recreate the original volumes as much as possible - although formally asserting itself with the stamp of our time and using techniques and current materials”* (ibid). Now in 2021, the proposal of a “shelter” for the ruins is still the preferred technique according to Parreira (full interview, Appendix D).

In essence, the works proposed were: installation of a “shelter”, engineering works to stabilize the site and the reinstallation of all mosaic floors with a phased approach restored with new underlying supports. The proposal is ambitious as they will need an archaeological team, geologists, architects and engineers, conservation technicians, mosaic artisans and specialists in the conservation and restoration of archaeological structures. Many of the recommendations would require substantial financing which could explain the delays in reaching their goals.

In 1998, Rui Parreira (IPPAR) coordinated a programme to prepare archeological sites in the Algarve and Alentejo for inclusion in the *“Itinerários Arqueológicos do Alentejo e Algarve”* (DGPC, 1995). Thirteen sites were chosen including Abicada for potential further excavations, documentation, and presentation as archaeological tourist sites. In the listing for Abicada, in the summary of the site, it states that the site’s proximity to a nature reserve will allow visitors *“privileged environmental conditions”* (DGPC, 1995). This is an important progression towards a coordinated programme of valorization of the ruins within the natural landscape. Ultimately Abicada is the only site in the group that does not become part of the programme for reasons unknown. In 1999, Rui Parreira approached Felix Teichner, a German archaeologist from the Johann Wolfgang Goethe University in Frankfurt to put together a team examining five rural sites in the Algarve and Alentejo requiring further research (including Abicada). The work took place between 1999 and 2003 and included studies of settlement history, geophysical prospecting, and studies of existing documentation and artefacts in the Lagos Museum (ibid). As the team were not researching only the Villa in Abicada, the final work is an interesting overview of Roman settlement in the Algarve region.

## 2.12 2000 to the present

The work began in the summer of 2000 with a precise topographical survey which was then used as the basis for all further work (Teichner, 2008, p. 506). The geomagnetic surveys were unsuccessful on both

sides of the site as rubble with metal particles interfered with the results. At that time the preservation authorities attempted to purchase the surrounding land but were unsuccessful and with no agreement with the owners, the scheduled excavation probes, an important part of the Frankfurt research were cancelled (Teichner, 2008, p. 28). The excavation works took place between summer 2002 and summer 2003. The results of these studies are published in several journals, (Teichner, 2007, 2016, 2018), (Brühlmann & Teichner, 2020) with the most complete synopsis published in a monograph in 2008. Among the important findings, the existence of the harbour wall running along the southern extremity of the site was a groundbreaking detail, assuring its nomenclature as a maritime villa and exposing the ancient landscape. The work reconstructed the architecture of the villa with illustrations, architectural details, and renderings. These drawings and descriptions are essential to bringing the *villa* to life and visualizing the life of its owners.

In 2010 and 2011, further restoration work was carried out by the specialists of the Palimpsesto company (E. Rodrigues, 2013). A concrete wall, anchored by micropiles ten meters deep, was built on the southern part of the site to support the entire area corresponding with where the historical wall of the harbour would have been. The support was necessary because of the clay soil and the construction of a complex of dairy barns to the north of the site. The ruins had been sliding down the slope, causing severe damage to its structure. A drainage network was installed to prevent standing rainwater, some of the walls were stabilized and the remaining mosaics were removed to the Museum of Portimão. The *Direção Regional de Cultura do Algarve* invested around 120,000 euros in these interventions (E. Rodrigues, 2013). At this time (January 2022) the ruins are yet again without proper access, signage, interpretation or supervision.

This last information was sourced from two in-depth articles (E. Rodrigues, 2013, 2014) written in a regional newspaper where the villa, the mosaics, plans for the ruins and interviews with the relevant authorities were shared with the general public. The inclusion of one of the restored mosaics in an exhibition at the Museum of Portimão in 2014 raised awareness of the plight of the site. On a final note the Director of the museum states in an online interview;

*“The ideal...would be that all the mosaics would return, one day, to the Roman villa, to be appreciated there by the visitors of the monument, which today has little or nothing to see. But this can only happen when, in Abicada, an interpretive centre is created like the one already existing in the neighbouring megalithic monuments of Alcalar. And, above all, when a structure is built that protects the ruins of the Roman house from the aggressions of time. All of this is in the plans of the Direção Regional de Cultura do Algarve, but it will have to wait for more prosperous times”* (E. Rodrigues, 2014)

### 3. WATER MANAGEMENT AND NEW PATTERNS IN THE LANDSCAPE: The History of Land Use at Abicada and surrounding area

#### 3.1 Introduction

The most striking changes in the landscape of Abicada have happened in the reconfiguration of the estuary, rivers, and streams. Kate Orff (2016, p. 10) recommends that landscape architects need to “visualize landscape history and interconnectedness.” as a result of the loss and degeneration of our collective knowledge of pre-industrial ecosystems. To understand the changing land use and evolution of the landscape, I consulted local historical documents which describe the land, agriculture, and fishing practices. There is little written about Quinta da Abicada by name in early documents. It is often referred to as part of the Mexilhoeira parish or the greater Alvor area. Useful historical cartography (diagram fig. 20, for original map see Appendix B, fig. 1) starts in 1884, before this, the area is only roughly defined in maps. The greatest changes took place 1953-1968 during the Agricultural Development Plans with intensive draining of wetlands, dyking and building of irrigation canals. The first orthographic images for the area are from 1958 from the USAF aerial photo coverage. Aerial imagery from the 1970s to the present was available to evaluate from Fototeca (<http://cgpr.dgterritorio.pt/Fototeca/index.html>) and IDEALg. This satellite imagery was evaluated in addition to the maps and surveys available and allowed for extra information of the changes over time (see figures 20-29). I also consulted the comparative satellite imagery studies of land-use change and wetland loss in Alvor of Diana Almeida (2014, 2016).

#### 3.2 History of Land Use from the Romans

Land use at Quinta da Abicada after the Romans can only be deduced in general terms until 20th-century mapping brings Abicada into greater detail. The Muslims occupied the Algarve area from the early 8<sup>th</sup> century and Alvor was noted as an important port economically exporting beyond Portugal to the Mediterranean area according to the monographs written about the Algarve (Ataíde, 1906; da Silva Lopes, 1841; Vieira, 1911).

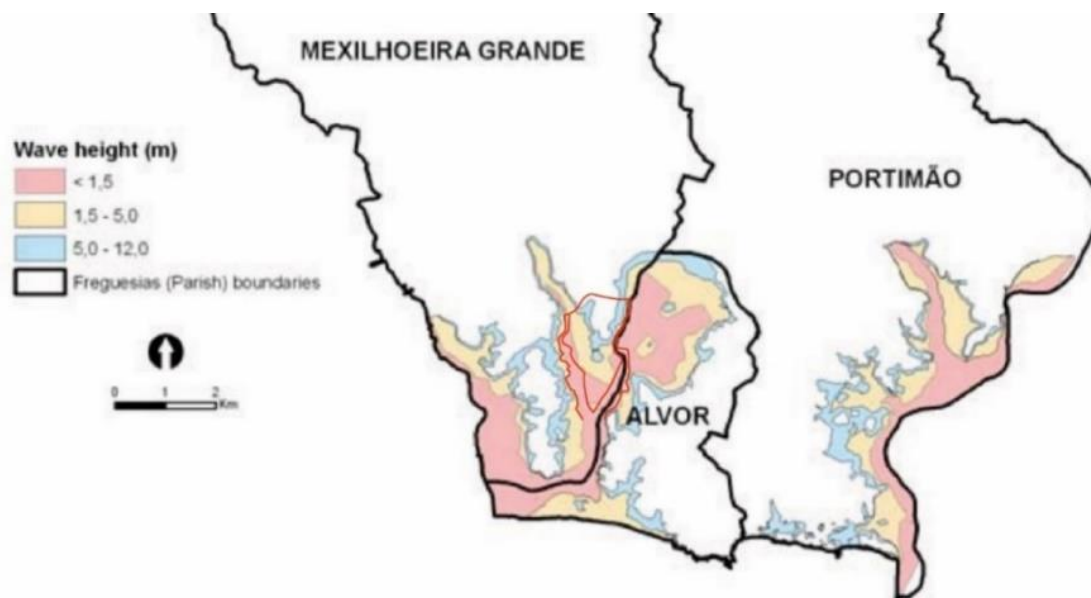


The older the map the less reliable as a source, (fig. 14) however, some information can be gleaned from early maps. This map drawn by Massimi shows the shape of the estuary before the earthquake and the types of large ships that could enter. The watermill and associated low lying area of marsh, though they are not to scale, appear to align with the Montes de Alvor area based on the assumption that cliffs, elevations, and valley depressions are not as variable as other areas. Based on this premise, the water mill and low-lying marshland could correspond with the area of (royal) salt pans. The water mill was still functioning until the 1960s.

**Fig. 14:** 1621 map of Alvor, Junta de Freguesia of Alvor (Ataíde, 1906)

### 3.3 The Tsunami

The tsunami of 1755 reshaped the coastline and changed the port of Alvor and the shape of the estuary dramatically. Waves were reported to reach 12 metres in places (fig.15). Large vessels could no longer enter due to siltation and new sandbanks (Bonnet et al., 1990; Chester, 2008; da Silva Lopes, 1841). Documents attest to the water reaching Mexilhoeira Grande and destroying many houses there. The population in the greater area was reduced and the shape of the existing saltmarsh altered dramatically. The sediment build-up also affected plant communities. The instability of the new morphology of the river set in motion a new wave of dyke building and embankments in the late 18<sup>th</sup> century resulting in saltmarsh loss (D. Almeida, 2016, p. 53; Pullan, 1988).



**Fig 15:** 1755 tsunami estimation of the flooded area and wave heights, Quinta da Abicada land spur delineated in red (Pedrosa & Gonçalves, 2008).

### 3.4 Early Cartography

There was no habitation on the Abicada peninsula noted on the first detailed map of the western Algarve from 1884 except for one building. The building shape, orientation and general location make it most likely to be the roman ruins. On the map of 1932 (fig. 21), there is another building roughly corresponding with farm buildings on the north of the spur. Not all individual houses were marked on this map, one building could correspond to a cluster of buildings. Work began on the train line in the Algarve in the 1890s, with the connection from Portimão to Lagos, which passes through Mexilhoeira Grande, inaugurated in Lagos in 1922 (Cabrita, 2014). The impact on the area was great, opening new markets for fresh produce including fresh and preserved fish. The train line is an important physical border in the landscape and is used as the northern perimeter of the Natura 2000 Network. Previously the western and central Algarve was extremely cut off from the rest of the country because of topography and bad roads.

### 3.5 Agriculture and land use 1900's

Ataíde, writing in 1903 notes the abundant and fertile *hortas* in the Alvor suburbs located mainly on the outskirts of Montes do Alvor, all irrigated by their own wells. He refers to the area as “*Valle*” which seems to correspond with Vale Freiras and Vale das Hortas next to the *salinas* directly across the River Torre from Abicada (fig. 19). He complimented the produce which was well appreciated in the markets of Lagos and Portimão<sup>9</sup> and is disparaging of *hortas* that use brackish water for irrigation and farmers who use marine plants as fertilizer (common in coastal areas of Portugal), labelling them as inferior quality with a salty taste. Quinta da Abicada appears to be covered in orchards and as far as the Roman ruins at this time. Land use of the adjacent Tapada da Penina in the early 1900s is unclear though because of its low-lying status it would likely have been flooded in the winter season and with the tides. Rice fields are not mentioned at this time (1906).

### 3.6 Shellfish and fishing

Many of the economic activities of the area have been related to the saltmarsh such as bivalve collecting and the collection of seaweed as a fertilizer for crops. The area was famous for an abundance of oysters, clams, mussels and cockles. Writing as early as 1747, Luiz Cardoso (da Silva Lopes, 1841) recounts that: “*The Alvor river and its marshlands were so abundant with shellfish, mainly clams, that they were transported in loads to Lagos, Mexihoeira, Portimão and Ferragudo, and in the evening one could fill a load and, in the afternoon, more loads are gathered from that place*”.<sup>10</sup> In a recent account of shellfish catchers (Mariano *et al.*, 2010) personal accounts of the men who still look for clams and razor shells advise that the numbers are extremely low and it takes many hours for a small catch.

### 3.7 Salt Pans: *Salinas*

The Romans probably had a form of salt pans in the area which were conserved during the Arab rule (Ataíde, 1906, p. 137). Because of their monetary value, they were well documented from the first years of the monarchy. Ataíde recounts that in 1314, El-Rei D. Dinis, granted to the people of Alvor the sale of the salt they needed if they “fertilized” the salt pans. In the 15<sup>th</sup> century again the privilege of taxes from the salt pans is given along with permission to create more in the saltmarsh (ibid). The nobility took great notice and care of the granting of licenses to these valuable resources and encouraged their cultivation. In the geographic dictionary of Luiz Cardoso, published in 1747, he mentions the famous

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<sup>9</sup> “*Nos suburbios dos Montes d'Alvor ha muitas hortas, algumas com suas noras proprias, e outras que se aproveitam da agua daquellas noras. Proximo do Sapal dos Montes, e no sitio de nominado —Valle —existem mais de vinte hortas com suas respectivas noras. No sitio da Tapada...ha diversos hortejos e muitas noras que os regam. Existem mais hortejos de so menos importancia, tendo quasi todos agua propria, mas salobra*” (Ataíde, 1906, p. 177).

<sup>10</sup> O Luiz Cardoso referindo-se ao rio de Alvor, escreveu: “*He navegavel este braço de mar só de em barcações do lote de vinte moios; he abundante de mariscos pequenos, principalmente ameijoas, de que cria tanta quantidade que, para Lagos, Portimão e Ferragudo, vão todos os dias mais de dez cargas de azemolas; advertindo que no logar, em que do manhã se tiram, se colhem de tarde outras tantas e se julgam inextinguíveis. Tem bastante peixe miudo e algum grosso.*” (abud Ataíde, 1906, p. 134)

*salinas* of the Duke of Cadaval in Alvor. By the time of the late 1800s the “most famous and extensive *salinas* in Alvor” were owned by the Viscount Bivar of Portimão (Cabrita, 2011). Ataíde, speaking about the river Alvor, clearly locates these royal *Salinas*. “From Alvor (*the river*) it heads north, dividing into Abicada, going on the right to feed the important *Salinas* of Alvor, now belonging to the former Viscountess of Bivar, and to receive the waters of the *Ribeira do Almadanim* in Penina, and on the left, it goes to Cagorro to receive those from the *Farelo* stream between the towns of *Mexilhoeira* and *Figueira*” (Ataíde, 1906, p. 124). It is important to understand the importance of these salt pans, in existence until the late 1950s, as they would have been a significant feature in the landscape, possibly used for salting fish at the Roman villa, clearly visible from Abicada and therefore an important part of the cultural landscape. Any strategy for visitors to the peninsula should demonstrate the traces of the lost landscape either through new digital means or simple signage on site.

### **3.8 Agriculture**

In the parish of Mexilhoeira Grande of which Abicada is part, accounts from as early as the 15<sup>th</sup> century refers to the parish as having a wealth of bread, there were several water mills and the area had many community ovens, orchards and vineyards. Hunting and shellfish were also plentiful. The area was able to benefit from the spoils of the land and sea. From 1747 Luiz Cardoso writing about the Alvor area stated that agriculture and *hortas* were mostly for personal use (CARDOSO, 1747), “These are the fruits of the land: grapes, figs, sumacs, wheat and some corn, but with little abundance, supposedly the smallness of the lot”. In the Monograph of Alvor, 1906, Ataíde discusses agriculture in the Alvor area referring to the figs, olives and almonds that were a staple dry crop traditionally grown together in orchards in the Algarve. In the land use map of the 1950s, there are few areas growing vines or olives by this time, except for directly north of Penina, the area of Morgada do Tapada, where there is a history of extensive vineyards. The area directly north of the Roman Ruins on Abicada is mostly mixed fruit orchards. The history of agriculture in the area is relevant to a future management plan of the area as it can inform a design for the site with appropriate recommendations for landscape design or agricultural projects.

### **3.9 Land reclamation and the Agriculture Development Plans at Abicada**

#### **1956-1964**

During the 18<sup>th</sup> century, land in the neighbouring area of Portimão was documented as reclaimed for agriculture, filling the marsh with nutrient-rich estuarine muds and building dyke structures (D. Almeida *et al.*, 2014; Vieira, 1911). This was a description from the neighbouring Arade river but the techniques for simple dam building would have been the same in Alvor. There is a suggestion of simple dams along the Abicada peninsula as early as 1884 (fig. 20). As part of the new state push for modernizing agriculture, large land works were completed in the area with the creation of a dam (*barragem*) in Odiáxere from 1956 to 1964 (fig. 17). Better embankments were built along the perimeter of Quinta da Abicada and a new dam which also functioned as a bridge, blocked the entry of tidal water to the River Torre. The salt marsh community in this new “lagoon” area created by the dam, took on the characteristics of a deltaic wetland (D. Almeida, 2016, p. 41). These new land works also included an extensive system of canals and raised aqueducts. The neighbouring alluvial plains of the Tapada da

Penina, land to the East of the Torre River were first used for rice fields, then after reclamation, Penina became the first golf course in the Algarve in 1969. The raised irrigation aqueduct system (fig. 16) transported fresh water from the dam in Odiáxere to the horticultural fields and orchards. Many of these raised cement structures feature as a characteristic, prominent feature in the landscape along with the trenches and the raised earthen “tapada” which encircles the peninsula.



**Fig.16:** raised cement aqueducts. Abicada, 2020

*“A REGAR! A REGAR!*

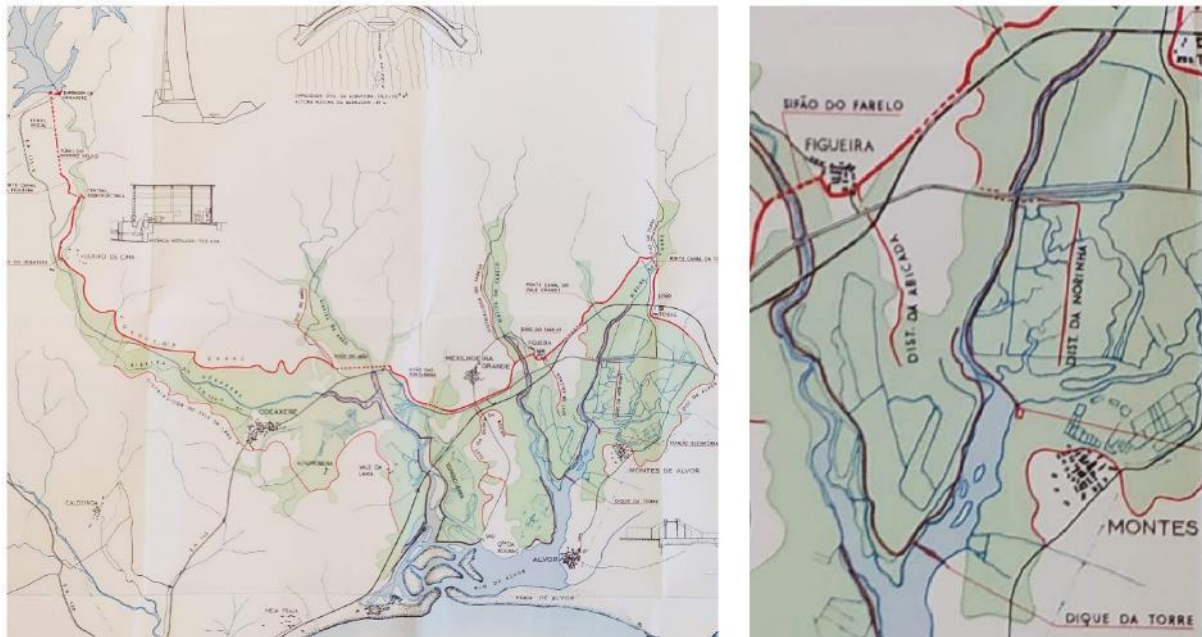
*Para nós que não queremos ser escravos da riqueza mas entendemos dever trabalhar para que a riqueza sirva o homem, a água não há-de ser só o factor de produção mais certo e económico mas a saúde da gente, a alegria e frescura da paisagem, o trabalho intenso, o sangue e vida da terra.”*

*“IRRIGATION! IRRIGATION!*

*For those of us who do not want to be slaves to wealth but understand that we must work so that wealth serves man, water will not only be the surest and most economical production factor but also serves people's health, the joy and freshness of the landscape, the hard work, the blood and life of the land.”*

*Quote from Salazar IN (Ministério das Obras Públicas. Direcção Geral dos Serviços Hidráulicos, 1959)*

This ambitious irrigation plan shows areas in green to be irrigated and reclaimed for agriculture (mainly rice fields) from the marshland (fig. 17).



**Fig 17.** Map (left image, and detail at the right image) showing the range of the dam and irrigation plan (Ministério das Obras Públicas. Direcção Geral dos Serviços Hidráulicos, 1959)

This included the entire Abicada wetlands and plains of Penina. In the period 1958 to 2010, there was a loss of 61% of saltmarsh area to agriculture (D. Almeida et al., 2014). The Portuguese Agriculture Development Plans (1953-1964) first created agricultural land by constructing embankments and clearing vegetation. The new aqueducts brought fresh water for irrigation. From 1959-1964, the land was drained by trenching. This destroyed many marshland areas which were permanently transformed. Areas with freshwater streams further away from the estuary were most successful at reclamation which accounts for the success of the Penina golf course and the aerodrome to the east of Abicada. In 1957 the Association of Irrigators and Beneficiaries of Alvor (ARBA) was created to manage the hydro-agricultural use of this area, using the Dam as the supply source. ARBA is responsible for managing this perimeter of 1,800 hectares.

### 3.10 1960 to the 1990s

The results of the Agricultural Works are seen for the first time on maps with the creation of the dam between Abicada and Maria Pires. Land use is now marked as rice fields for both Penina and Abicada (fig. 24). This was short-lived as Penina was already in the process of transformation to a golf course so the survey for the 1963 map must have been out of date. The former salt pan at Maria Pires is now also rice fields. The number of buildings is consistent with earlier maps showing no new development on Abicada. Photos from the documentation of the Roman ruins by SIPA show fields with orderly trenches and vegetated earthen dykes. After the sale to Aquazul in 1967, for reasons unknown the land is not developed but leased to local farmers and the rice fields fell into disrepair.



**Fig 18:** *Abicada landscape looking Southwest 1976, SIPA Photo Archive, 2021*

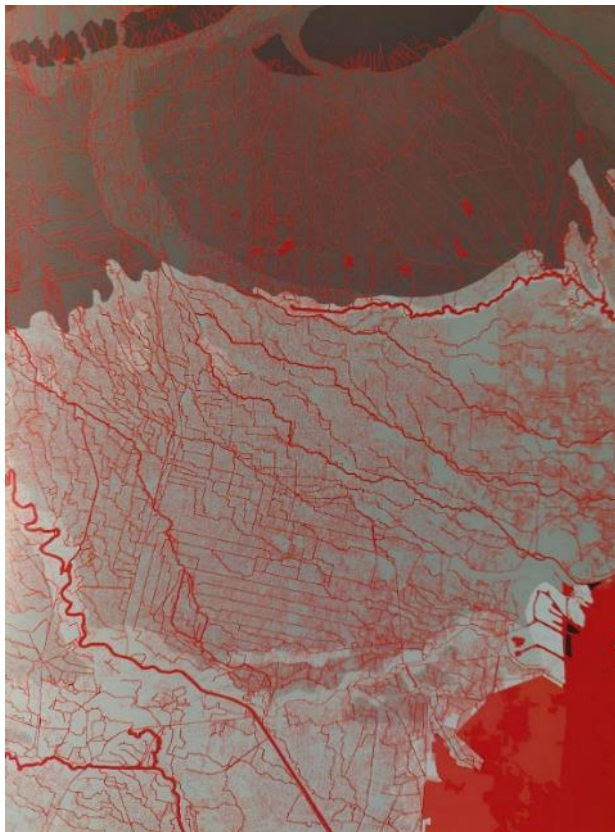
By the 1980's most of the agriculture had been abandoned and was a subject of concern as Portugal looked to enter the competitive market of the E.U. A Report from a conference in 1986, (A.P.R.H, 1986) suggests that 38 % of the soils within the irrigated area were in the "third class of irrigation aptitude" making them unsuitable for irrigation, especially on the wetlands. "Third class" soils were categorized as "defended (dyked) and undefended wetlands and salt pans (ibid). The report listed 56 ha at Abicada that required further study with the possibility of removing it from the perimeter (see Appendix B, fig. 11). Although much valuable agricultural land has been created by the process of "reclaiming", there are many examples when the land is not agriculturally productive (Adam, 2002). From the 1980s to 2010, by 1982-1987 irrigated rice area decreased from 59 to 38 ha and after this there are no irrigated rice fields in the Alvor area. The number of orchards and *hortas* are less than half (see Appendix C, table 3). By the 1980s and 1990s the former wetland area starts recuperating and higher land is mostly used for cattle farming with free-roaming cattle entering the area south of the ruins. A small increase in saltmarsh was observed from studies of photo ortho maps with an average of 9 ha/year of new saltmarshes in the Alvor area during 1995-2010 due to agricultural land abandonment (D. Almeida, 2016, p. 59).

### **3.11 Environmental Reports**

By the 1980's Pullan (1988), wrote an extensive study of the history of the saltmarsh in the Western Algarve. Several reports from the local non-profit A Rocha dating from the 1990s detail the flora and fauna in Abicada with an emphasis on bird-life (Harris, 1990; Lings, 2005; Scheres, 2005; Simonson, 2004). Simonson noted a distinct area with overgrown reed beds in the ditches. These freshwater

marshlands covered a rectangular area of approx. 14.5 ha, “with distinct demarcation from the surrounding salt marshes and reclaimed agricultural fields” (2004). He notes with interest that that area is a “hydrologically isolated unit, with year-round standing water within the ditches and, in winter, flooding across much of the terrain”, (2004). Further visits to the site confirmed the absence of water inputs from irrigation channels or any connection to the intertidal estuary system. Instead, they found the probable presence of at least one spring at the foot of the Abicada peninsula, explaining the presence of year-round water. These reed beds were in constant threat in 2004/2005 from clearing by farmers although supporting a long list of bird species for nesting and feeding. This area should be given important consideration in future habitat restoration studies.

### 3.12 Cartographic Diagrams



The following diagrams (fig. 20- 29) show the changing land use and the evolution of the river and streams of Abicada over time. The palette and design were chosen based on the designs of Bernardo Secchi and Vigano for the Venice region, showing water lines in red, reformulating the image (road networks are usually rendered in red) and uncovering a new logic of reading (Desimini & Waldheim, 2016, p. 147).

**Fig. 19:** left, Venice Lagoon and Delta by Bernardo Secchi and Vigano, source: (ibid)

### 3.13 Ten Diagrams 1884 to 2020 illustrating Land Use Change

1884

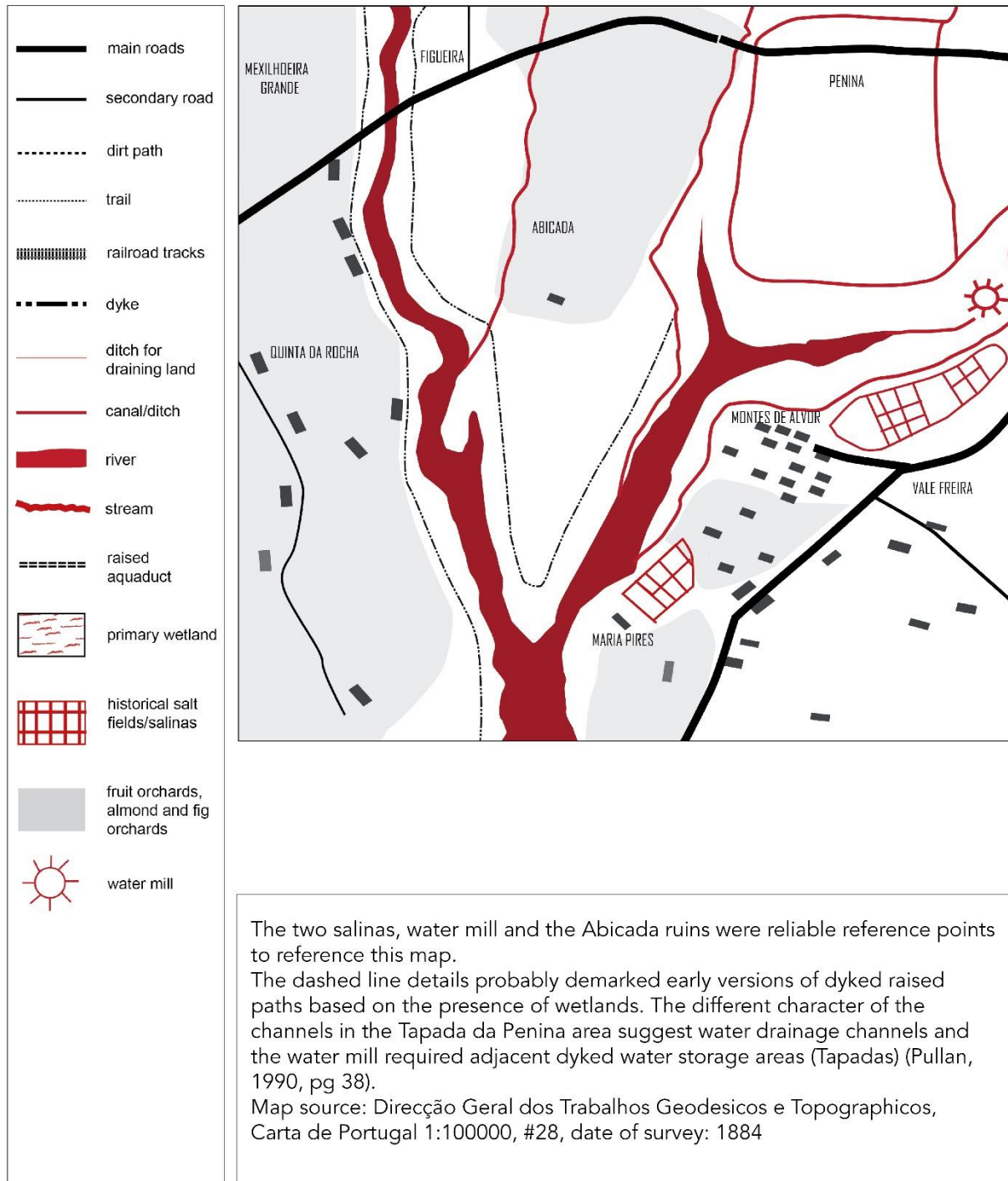
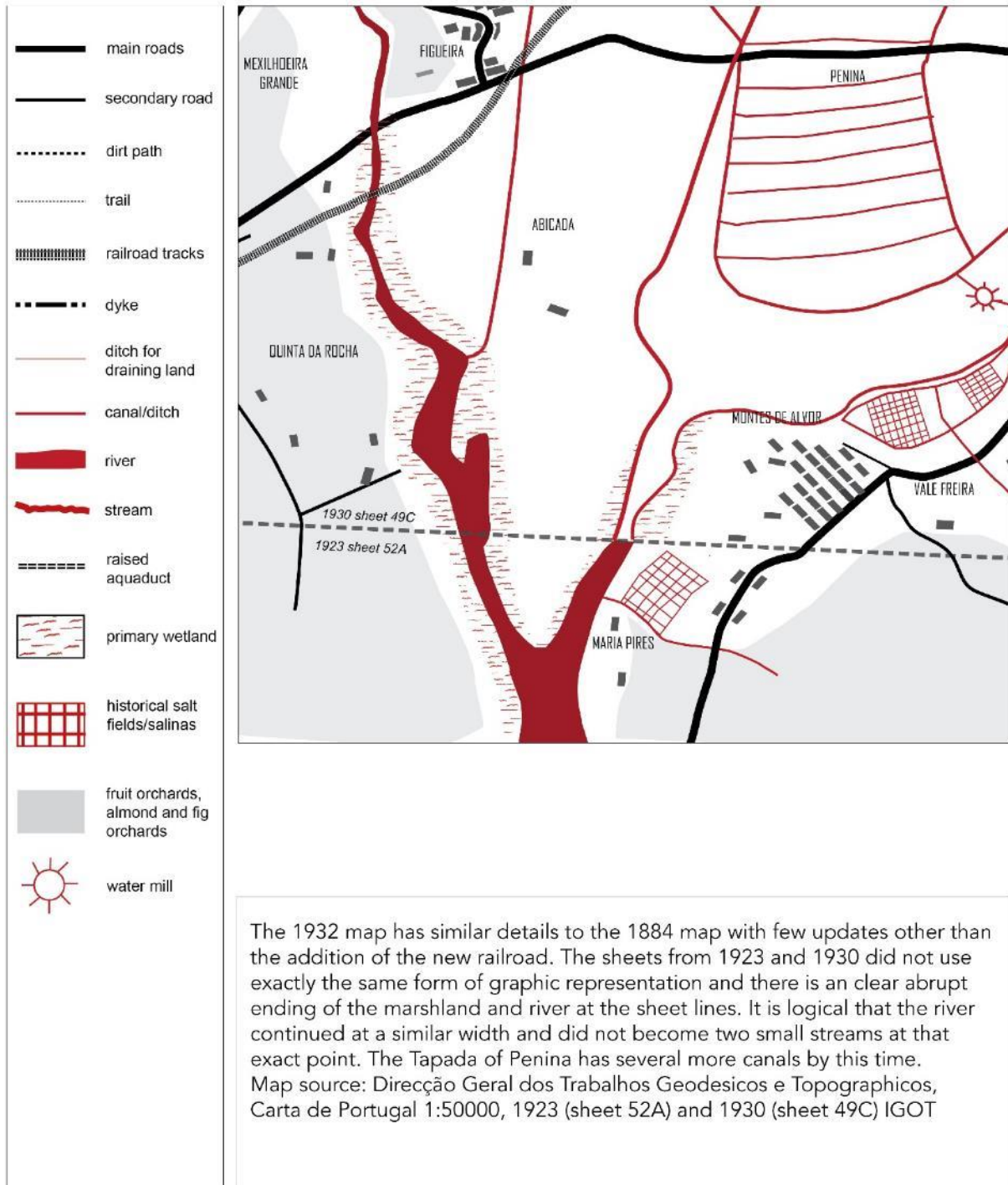


Fig 20: Diagram 1 of 10 series to illustrate land and water changes over time at Abicada

# 1932



**Fig. 21:** Diagram 2 of 10 series to illustrate land and water changes over time at Abicada

1951

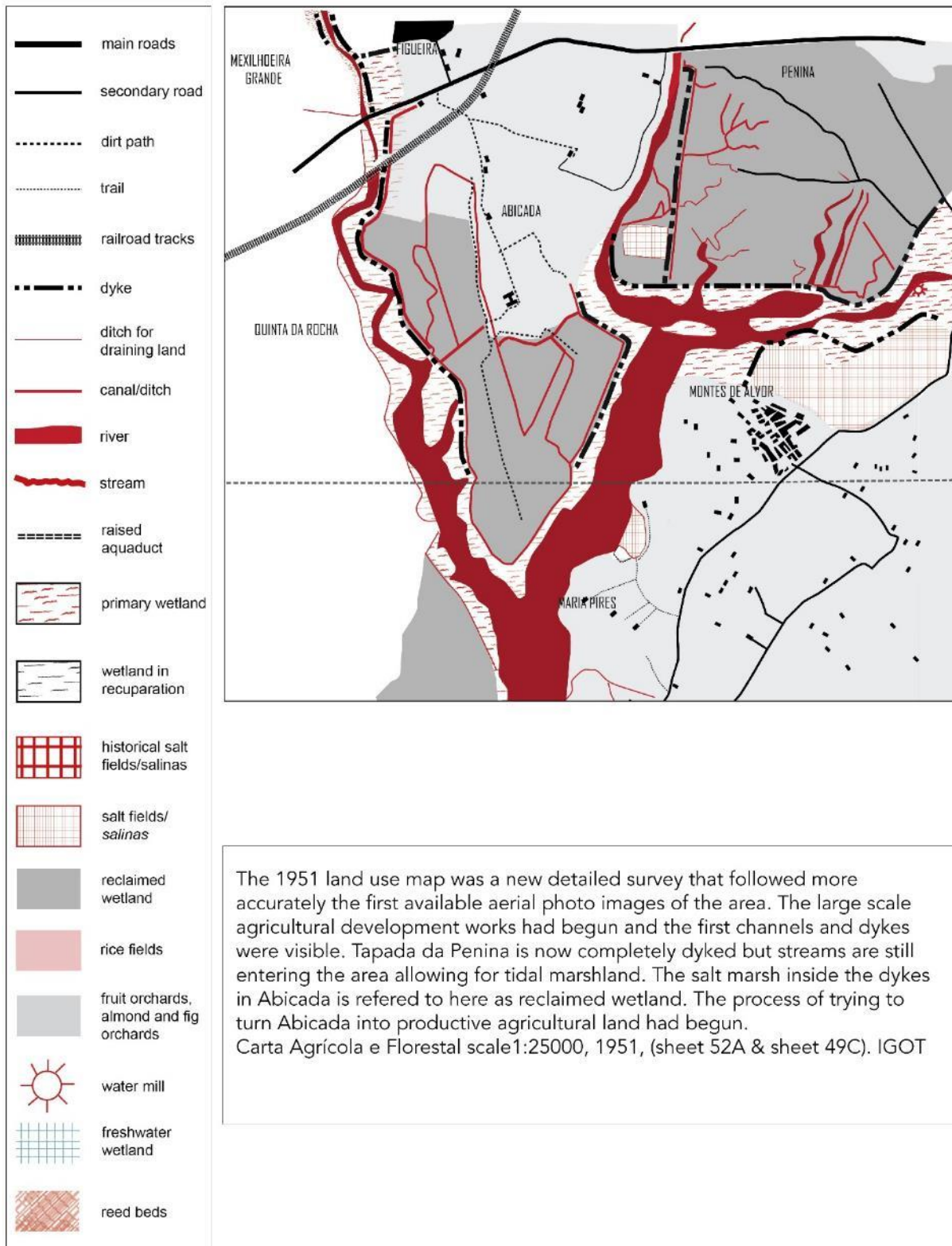


Fig. 22: Diagram 3 of 10 series to illustrate land and water changes over time at Abicada

1958

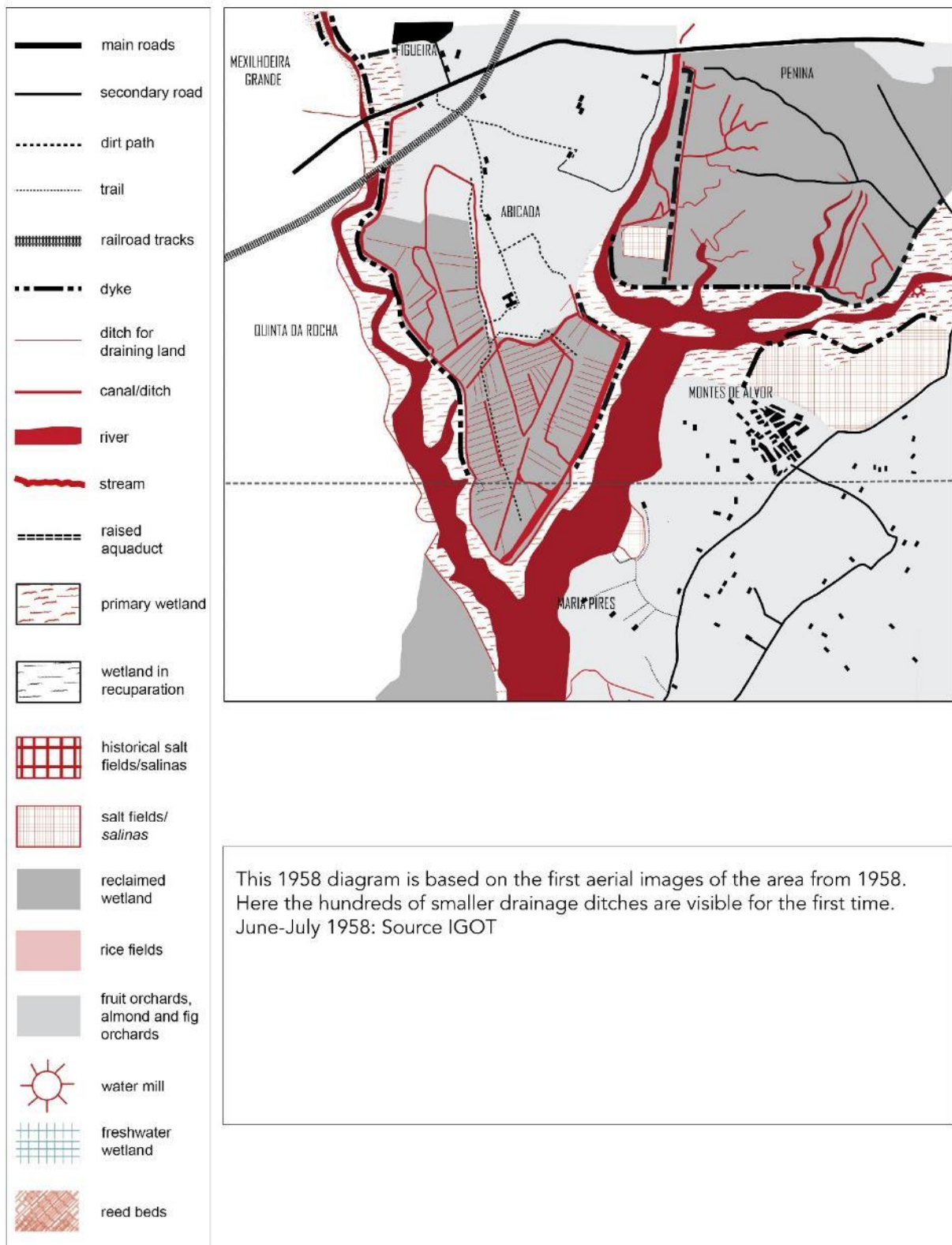


Figure 23: Diagram 4 of 10 series to illustrate land and water changes over time at Abicada

1963

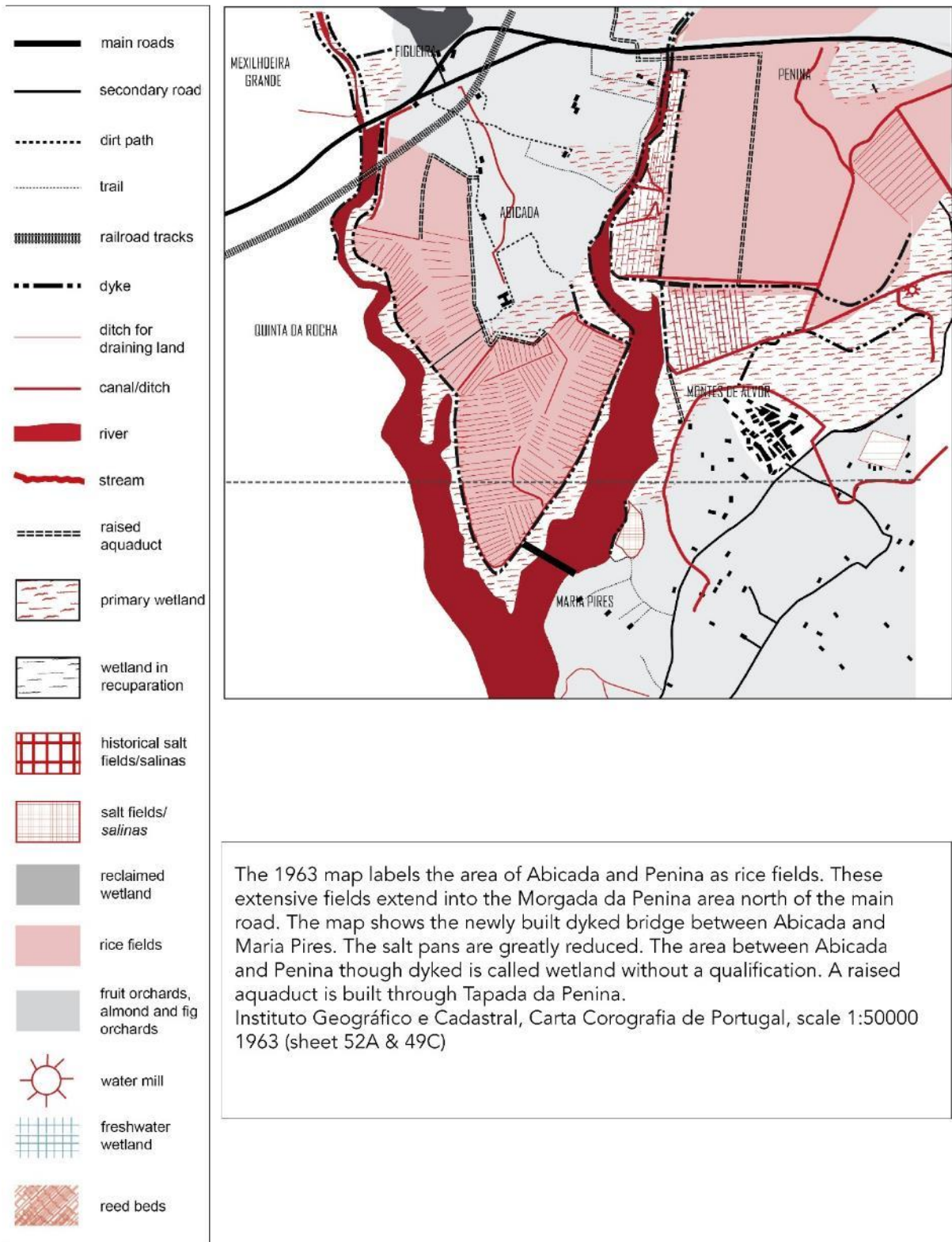


Figure 24: Diagram 5 of 10 series to illustrate land and water changes over time at Abicada

1972

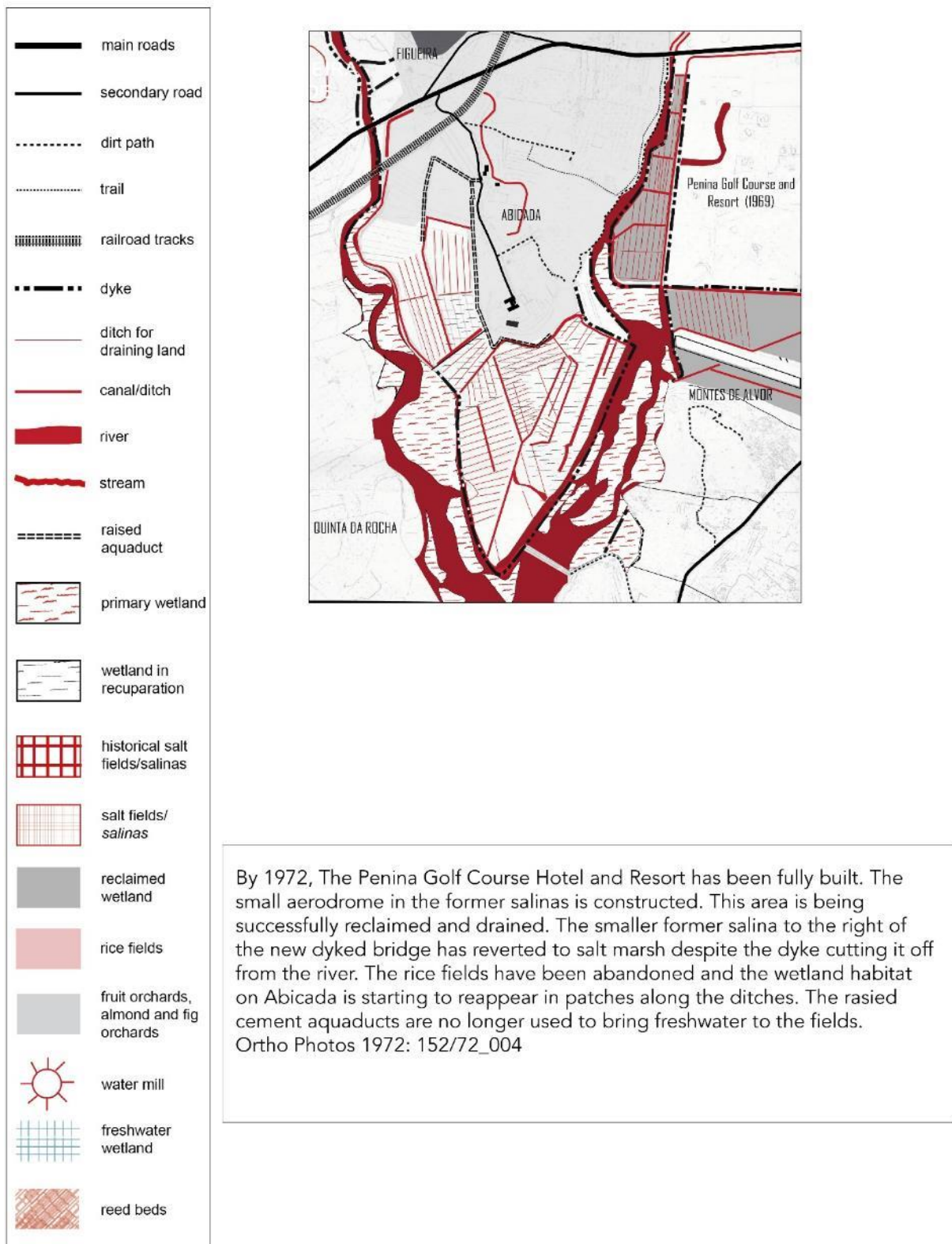
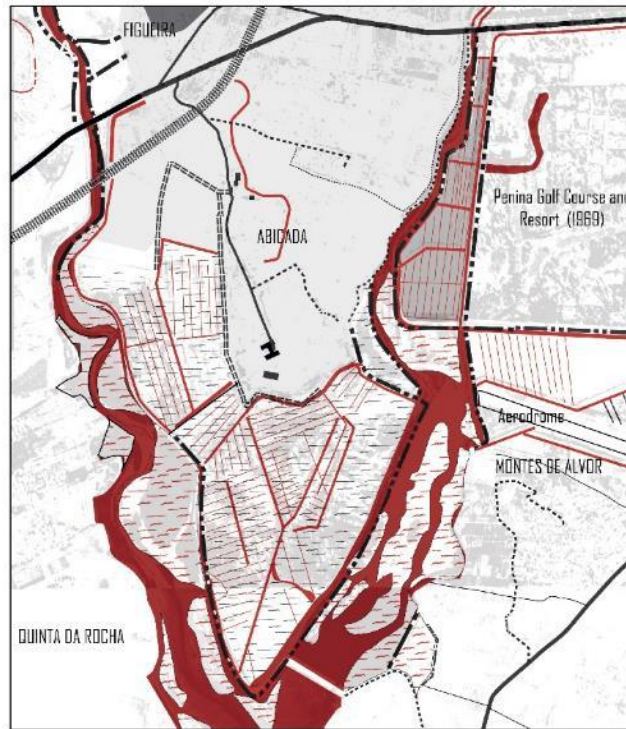
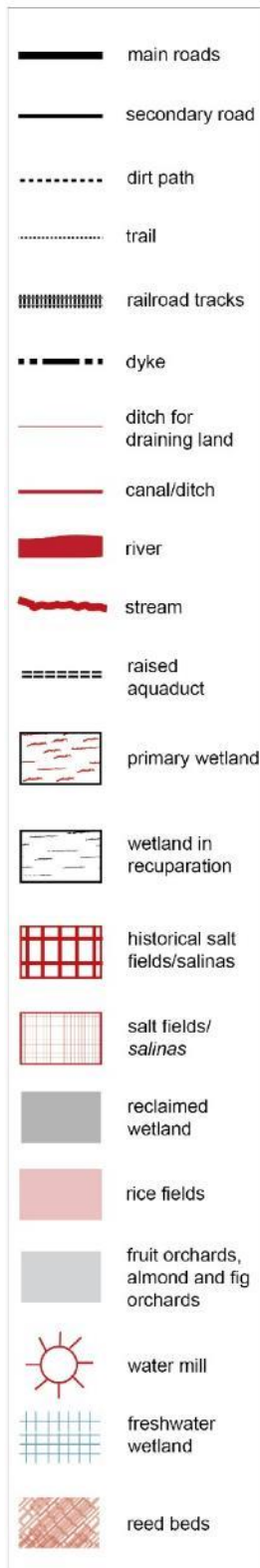


Fig. 25: Diagram 6 of 10 series to illustrate land and water changes over time at Abicada

1982

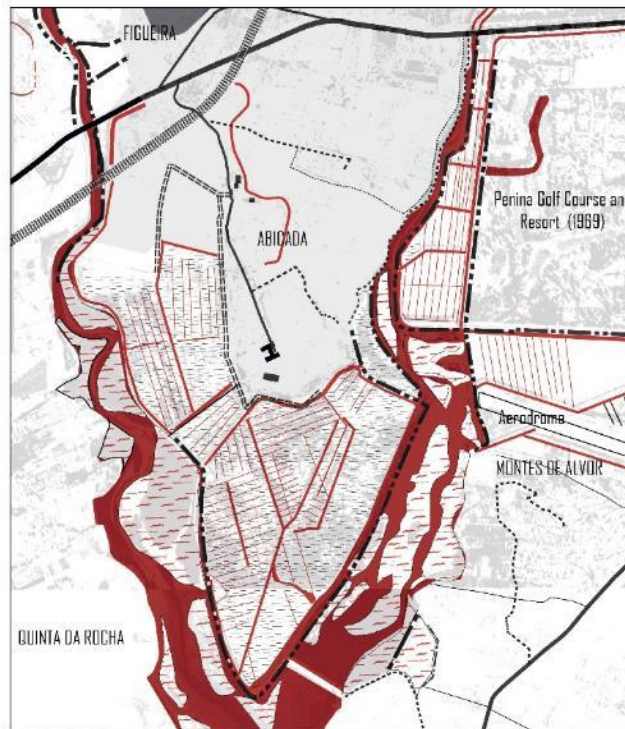
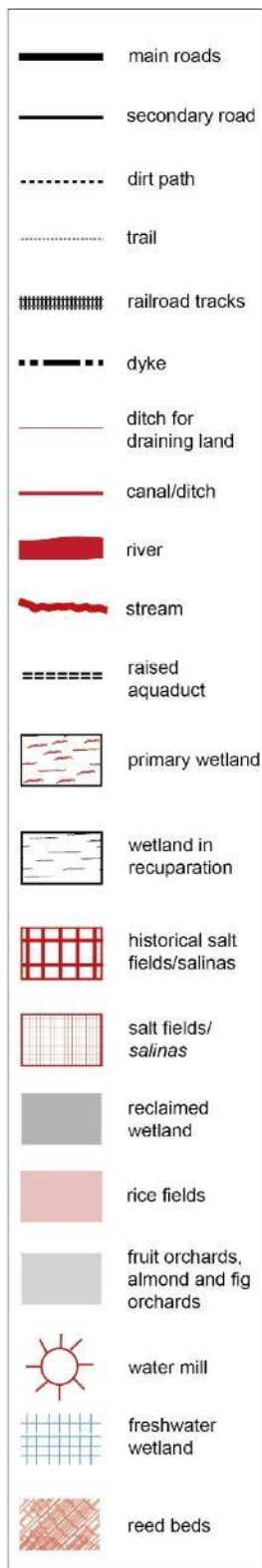


By 1982 the patchy wetland habitat has reached into most of the reclaimed area on Abicada. The wetland area beyond the dyked bridge has established itself close to its final shape. The dyked aerodrome area and strip between Penina and Abicada is almost completely reclaimed.

Ortho Photo maps 1982 <http://cgpr.dgterritorio.pt/Fototeca/index.html>

Fig. 26: Diagram 7 of 10 series to illustrate land and water changes over time at Abicada

# 1995

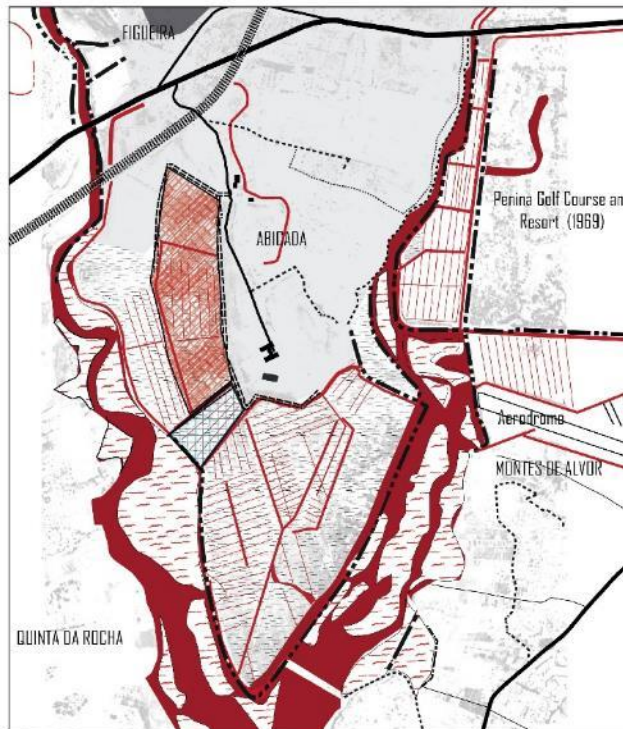
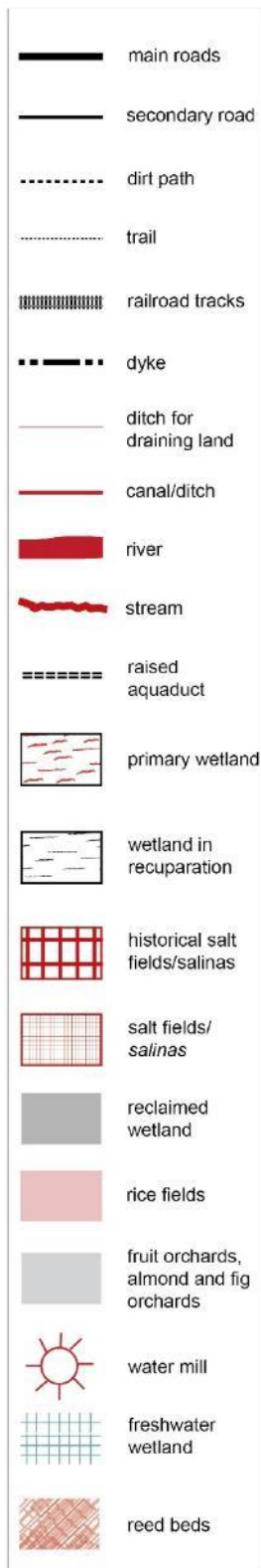


By 1995 local reports mention freshwater wetlands on Abicada that are fed by local springs on the peninsula located at the end of the raised aquaduct. This small rectangle of dyked area has a different aspect and fewer drainage channels.

Ortho Photo maps 1995 <http://cgpr.dgterritorio.pt/Fototeca/index.html>

**Fig. 27:** Diagram 8 of 10 series to illustrate land and water changes over time at Abicada

2002



By 2002 the freshwater reedbeds mentioned in habitat reports from a local environmental group are visible on the photos. (Lings, 2005; Scheres, 2005; Simonson, 2004). These reedbeds are important nesting and feeding areas for wetland birds. A small part of the area between Abicada and Penina seems to show wetland species establishing near a old waterline and ditches. Ortho Photo maps 1995 <http://cgpr.dgterritorio.pt/Fototeca/index.html>

Fig. 28: Diagram 9 of 10 series to illustrate land and water changes over time at Abicada

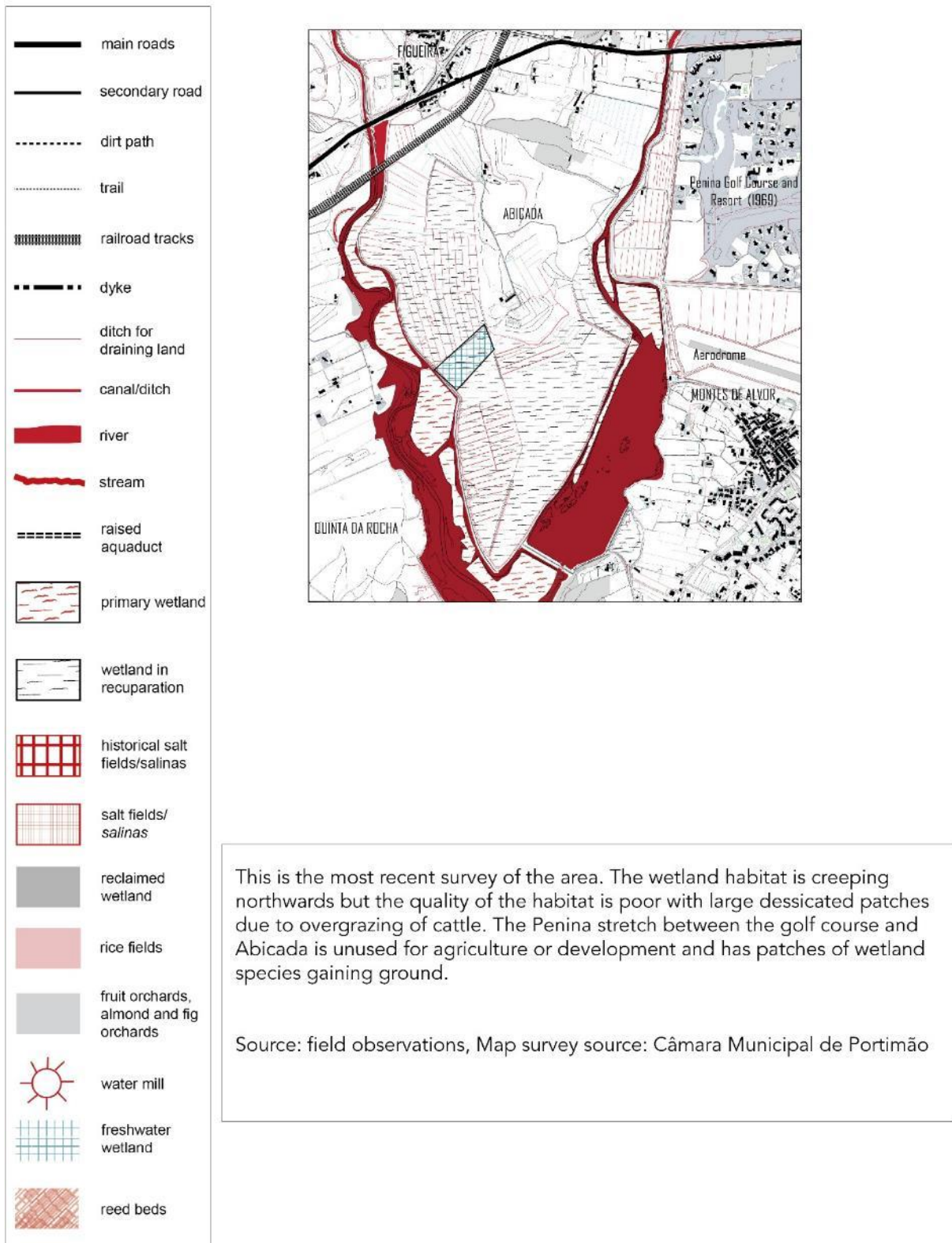


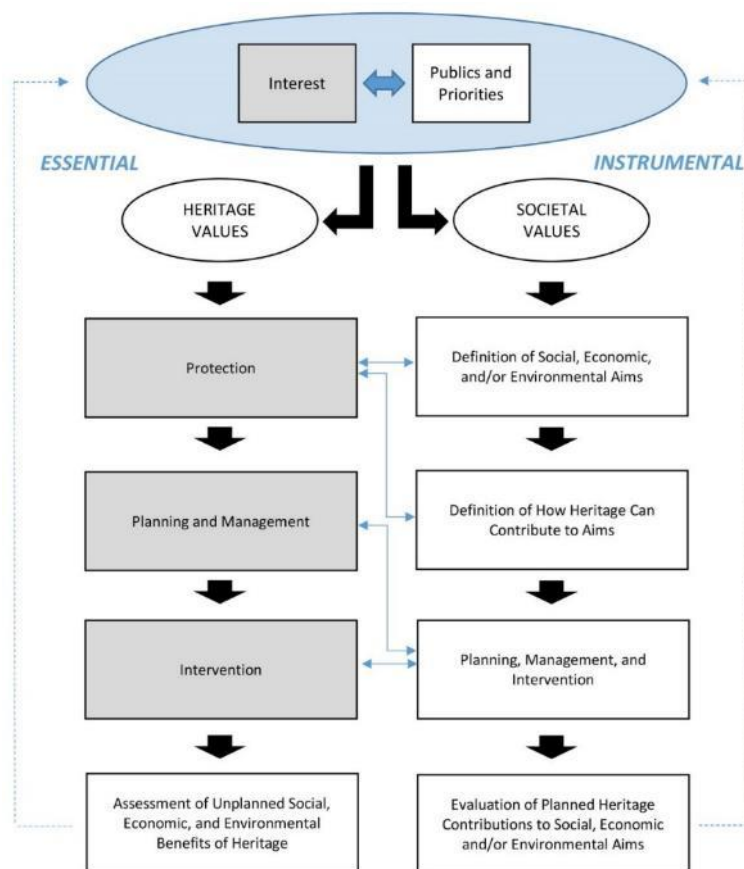
Fig. 29: Diagram 10 of 10 series to illustrate land and water changes over time at Abicada

## 4. MANAGEMENT OF AN ARCHAEOLOGICAL SITE IN AN ENVIRONMENTALLY SENSITIVE AREA

### 4.1 Introduction

Quinta da Abicada is an important archaeological site, protected as a national monument and located in an environmentally protected and undeveloped habitat. It is a place where the past intersects with the present. In considering a management plan for this cultural landscape it is important to find the right processes that can give protection and attribute value<sup>11</sup> to both the archaeological findings and the landscape itself. Any design proposal should be prepared with the objective of implementing a programme for the protection, conservation, and presentation of the Roman ruins to the public including interpretation of the larger area and enjoyment of the surroundings for recreation and education without impacting the landscape.

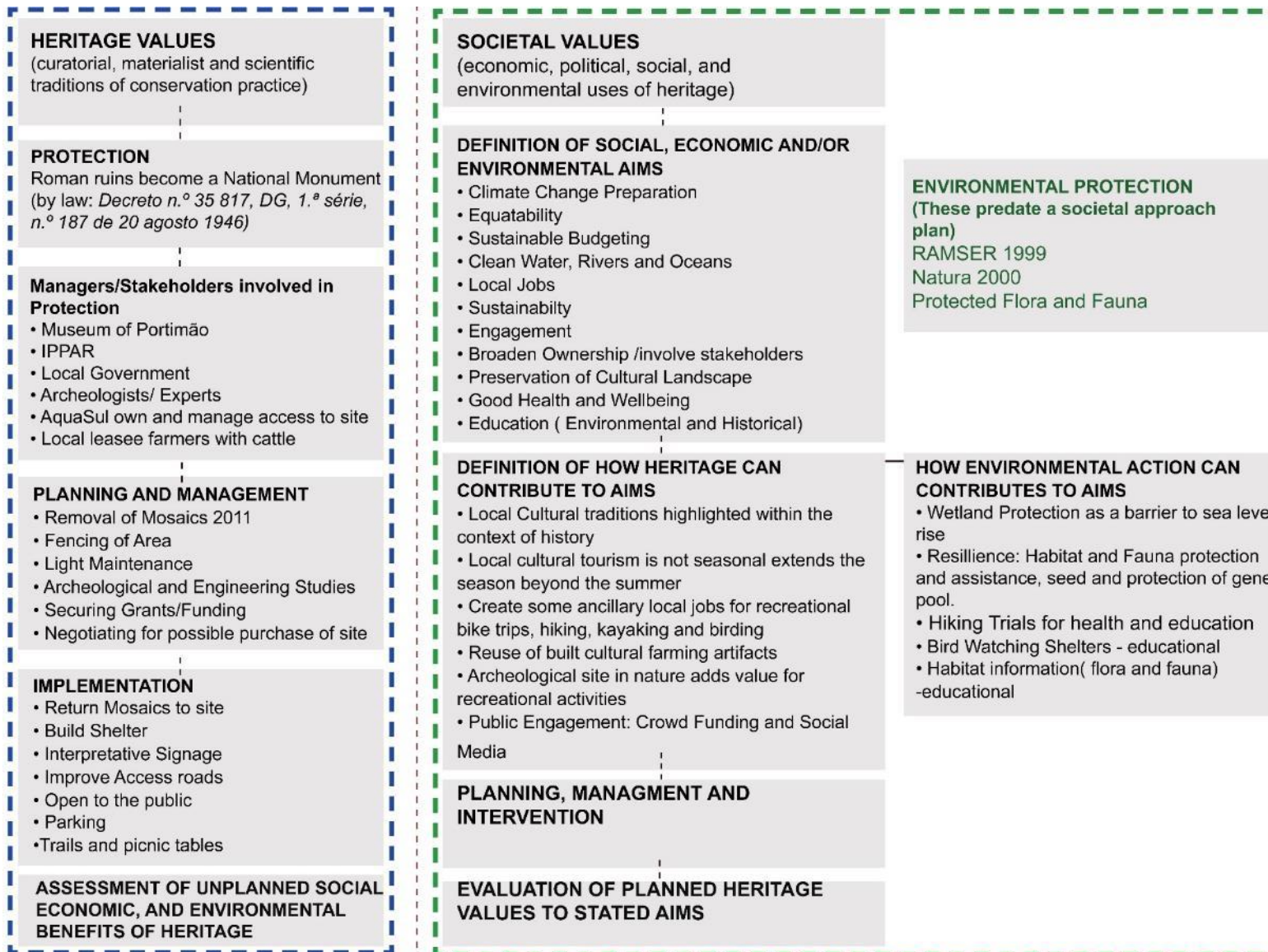
### 4.2 Framework



**Fig. 30:** Diagram of Essential Heritage Values v. Instrumental Societal Values (Avrami & Mason, 2019).

The framework and diagram from Avrami and Mason (fig. 30) were used as a starting point to examine the site. It is a synopsis of current thinking on heritage management considering environmental impact and societal inclusion in planning. It compares the traditional path of heritage conservation which preserves heritage values as the main essential value and assesses benefits after implementation of the plan. Considering societal value leads to a more inclusive track. From this diagram, I have adapted a version to suit the Abicada site. When the traditional form of heritage planning is followed without considering societal and economic values and goals, there can be many unplanned outcomes.

<sup>11</sup> According to the Burra Charter (ICOMOS, 2013), prepared in the Australian city with the same name. The term “value” does not refer to ethics or beliefs but instead to the positive qualities or attributes set down by the stakeholders



## 4.2.1 Framework for Abicada

The blue flow chart in figure 31 represents following a traditional method of preserving heritage and creating a management plan. This path considers the Roman ruins and their preservation as the primary goal along with some ancillary services for the public. The green chart uses social, economic and environmental goals for the site as the starting point.

**Fig. 31:** *Diagram of Essential Heritage Values v. Instrumental Societal Values, adapted for Abicada site based on framework IN (Avrami & Mason, 2019)*

## 4.2.2. Local and Administrative Stakeholders

Looking at heritage value and patrimony, the subject of ownership is often contentious. Broader ideas of ownership, partnered with the political and ethical importance of stakeholders are becoming more a part of heritage decision processes. This creates new forms of ownership (Avrami & Mason, 2019). Some stakeholders can have a strong influence over a site without being the legal owners, such as community groups or cultural centres that fundraise by crowdsourcing. Because of the (almost) total ownership of the site by Aquazul, there is predominately only one owner/stakeholder of the Abicada peninsula. The state purchased the archaeological site (2,200 sq. metres) and have rights of access. There are a handful of farms and housing on the northern part of the peninsula closer to the EN125. Tillage and cattle farmers have leased some of the lands since the purchase by Aquazul in the 1960s. Local bird watching non-profit 'A Rocha', use the site for birding tours and have been monitoring the site and producing reports sporadically regarding the fauna (and to a lesser extent flora) in Abicada since the 1980s. The site's inclusion in Natura 2000 offers some oversight and protection from development. Natura sites are monitored in theory by the ICNF. The local authority (*Camara*) in Portimão and the Museum of Portimão share responsibility for the Roman ruins. Many archaeologists and students over the years have worked on the site and have valuable insight and a vested interest in the future of the site. As the site has cultural value and interest to the public we can be included as stakeholders in our shared heritage and protected environments. Fisherman, bivalve collectors, (Fig. 32), recreational boaters (kayaks etc.), cyclists and hikers are all using the site and its buffer zones at present. If we apply the aphorism that *"the best decisions and plans are those that preserve values for the long term and as many stakeholders as possible"* (Teutonico & Palumbo, 2002). We could conclude that any management plan should include the voices of many more people than just the local authorities and the owners. Unfortunately, in practical terms, if most of the site stays in private hands, the exercise of creating a road map for a best-case management plan remains in the theoretical realm.



**Fig. 32:** clam collector on the Abicada dyke. Image source: (Mariano et al., 2010)

## 4.3 (A): Management of an Archaeological Site

*“Conservation of cultural heritage is essential because it provides us with a greater understanding of our identity, of continuity, of the human condition, and of our place in the world and in time.”* (Teutonio & Palumbo, 2002, p. 13). A synopsis of the latest trends in heritage management points to an extension of thinking beyond conservation solely for aesthetic, artistic and historic reasons (traditional heritage values) and seeks to include societal value systems such as economic, environmental and social issues (Avrami & Mason, 2019). Inherited value systems are being challenged for better or worse. It is an informative and helpful exercise to view the Abicada site through this lens before opening to the public. *“A Bem da Nação”* (for the good of the Nation) was the motto of the old Portuguese Heritage Department DGEMN during the Salazar regime, which invoked a narrow nationalist view of heritage. According to Article 3 of the Charter for Management for an Archaeological site (ICOMOS, 1990) *“Legislation should be based on the concept of the archaeological heritage as the heritage of all humanity and of groups of peoples, and not restricted to any individual person or nation”*. The ruins at Abicada were important enough that several individuals have championed their cause since the original discovery almost 100 years ago with the excellent monograph by Teichner (2008) bringing greater notice to its archaeological importance.

### 4.3.1 Methods

As a starting point, I interviewed a representative from the museum of Portimão who are currently (July, 2021) looking at a plan for reopening the site. The municipality of Portimão, within the scope of the recent transfer of responsibility to municipal bodies in the field of culture, is currently developing a project to enhance the site, in conjunction with the government ([personal communication, May, 2021]). I also interviewed Rui Parreira, the director of *Direção Regional de Cultura do Algarve* (Institute for Cultural Patrimony and responsible for National Monuments in the Algarve region) who has been involved in different roles with the site for almost 40 years. The transcripts of these interviews are available in Appendix D and the opinions and conclusions are incorporated into this chapter. The director of the museum of Portimão (E. Rodrigues, 2014) and the cultural director of IPPAR (L. Kearney, personal communication, April 11, 2021) have declared that they are keen to restore the mosaics to the site and they both propose to build a shelter to protect the mosaic from the elements before their return. This shelter would be part of a Management Plan for the musealization of the site and opening to the public. Among the issues discussed: signage for interpretation and wayfinding, access roads and parking (there is no guarantee of a parking area) and recreational enjoyment of the landscape.

### 4.3.2 Politics and assumptions of value

In terms of the visitor experience and education, the mosaics at Abicada are remarkable and the location in an extensive, practically untouched cultural landscape adds great value and interest. What does Roman history and culture have to say to us in 2021 in the light of climate change, habitat destruction and political division? What are the values we are bringing to the public with a newly publicised monument or cultural centre? Perhaps it would be relevant to look at an aspect of Roman culture such as their globalist tendencies and assimilation of different cultures, highlighting the North African and Middle Eastern influence on mosaic floors for example. Cultural heritage can be valuable in the *“search*

for peace, international stability, communication among and the forging of links between peoples, the sharing of common values, and respect for cultural diversity” (Bond & Worthing, 2016).

### 4.3.3 Return of the mosaics to the site

The Burra Charter, first adopted in 1979 (ICOMOS Australia, 1987) reinforced the “in situ” conservation of monuments such as mosaics, stating in Article 9, “A building or work should remain in its historical location. The moving of all or part of a building or work is unacceptable unless this is the sole means of ensuring its survival”. As this was the case for the Abicada mosaics, their return should be of top importance, but only to a place that can ensure their endurance into the future.

### 4.3.4 Leaving a site abandoned

In a report by the Getty Institute, (Teutonico & Palumbo, 2002), they note that at certain sites, tourists climb on ancient walls to get better photos of mosaic floors and sometimes remove mosaic tesserae as souvenirs. The report states that “lack of signage, clear paths and maintenance undoubtedly have a psychological effect on visitors” (ibid, p.6). A site perceived as abandoned can often become damaged or vandalized. This is relevant to Abicada as this behaviour was reported on the site until the mosaic floors were removed and the area fenced.

### 4.3.5 Common risks for sites with mosaics floors

- Vandalism (removal of tesserae). Insufficient security and protection from vandalism
- Tourists walking on walls and floors (avoidable with good design)
- Standing water/ inadequate drainage
- Salt encrustation/ Water and salt content of the soil beneath the floors
- Mould and algae
- Temperature variations
- Water condensation and leaks from the roof
- Bird droppings
- Light
- Inadequate roof drainage
- Vegetation and microbiological growth ( fig. 33)



**Fig 33:** mosaics before removal circa 2010, source: website [allaboutportugal.pt](http://allaboutportugal.pt)

Source: (Neguer & Alef, 2005)

### 4.3.6 Threats to the Abicada archaeological site

- Subsidence of the walls due to nearby illegal cattle shed construction resulted in a retaining wall built in 2012.
- Insufficient buffer zone. At present, the site purchase covered the direct area of the ruins which left no space for a buffer zone. This means the exclusion of further archaeological

explorations on adjacent land despite strong evidence that the site extended further than its current footprint. Adjacent land can threaten the site physically or visually with development or the building of services, such as sewage or access routes.

- Natural decay processes from the elements.
- Lack of stakeholder recognition and participation and education leading to a lack of public interest and action (Teutonico & Palumbo, 2002).

### **4.3.7 Managing Sites with Mosaics: Building a Shelter- Design Issues**

The Israel Antiquities Authority undertook a risk assessment of 106 mosaics under 36 shelters, they found that almost half of the mosaics were deteriorating and that in some cases shelters accelerated deterioration. A common cause was shade that allowed mould to grow and water to accumulate (Neguer & Alef, 2005, p. 57). According to the report, shelters protect mosaics from some weather but do not solve problems such as water infiltration, air circulation and water drainage. Problems also resulted from lack of mosaic maintenance, lack of regular monitoring and lack of shelter maintenance. In the case of Abicada, it is important to note that although funding may be found for initial construction, without an ongoing budget, returning mosaics and constructing a shelter without considering long-term maintenance, could do more harm than good. The alternative option, to design a fully enclosed building with air and temperature control, brings substantial additional construction, ongoing costs and a bigger visual impact to the landscape. A full assessment of these issues with serious consideration given to the visual impact and landscape character should be taken before moving forward. The results of a comparative test by the Getty Conservation Institute and the Israel Antiquities Authority in Israel between 1999 and 2002 showed that non-maintained mosaics under shelters deteriorated at a higher rate than exposed mosaics. This emphasizes the need for a budget for ongoing maintenance. *“Both the evaluation and the planning of shelters are based on understanding the shelter and mosaic as an ecosystem”* which should consider all the interactions among the different elements (ibid). *“Ideally, new designs for shelters should incorporate flexibility for modification in response to postconstruction review”* (ibid, pg. 73).

#### **4.3.7.1 Visual Impact:**

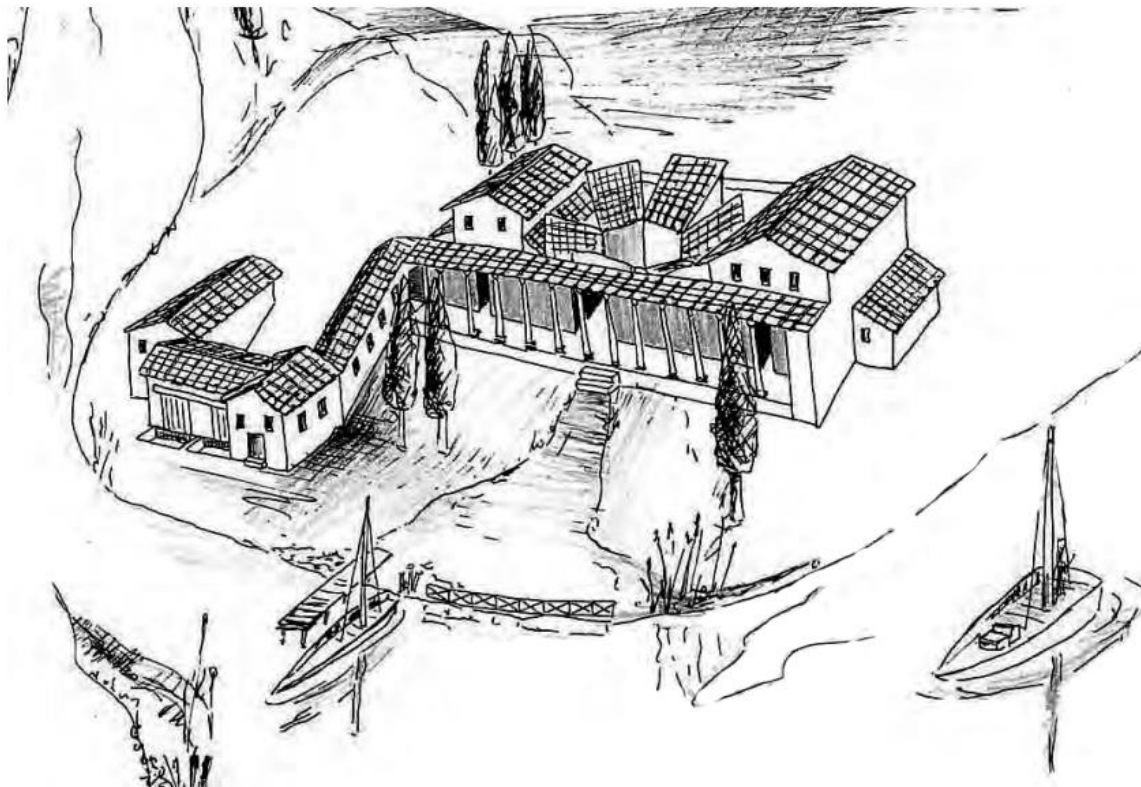
The visual impact of a large shelter and the architectural quality of the shelter are important considerations when weighing up the need for a shelter (Neguer & Alef, 2005, p. 146). The shelter needs to be in harmony with the surrounding site, a challenging architectural problem in Abicada considering the vastness of the surrounding wetland. The entire surrounding area is low lying (between 1-3 metres) making the ruins, which sit atop a small hill, easily visible from all directions and at long distances (fig. 35). The visual impact of any ancillary buildings such as an interpretation centre and/or other public facilities should also be carefully considered. There is an opportunity to remove the existing cattle sheds (which are an eyesore) with an architecturally and environmentally sensitive low-lying centre or to house all services further from the site at the existing agrarian buildings further north.



**Fig. 35:** Roman ruins, looking S. at the Alvor river from the high ground of the site

#### 4.3.7.2 Open Style Shelter

Building a shelter open to the elements has many disadvantages that need to be addressed, however, it is a more financially viable option and has the potential for adaptation in the future. In considering this option, architecture in this landscape should be as low and unobtrusive as possible, avoiding large glass windows which can be hazardous to birds. Based on the excellent reproduction designs in the monograph of Abicada, (fig. 36) a simple structure with terracotta tiles would be a simple solution to keeping with the Roman aesthetic (fig. 37). However, the issue of shading and mould is not resolved.



**Fig. 36:** Recreation sketch of the Abicada maritime villa IN (Teichner, 2008)



**Fig 37:** Possible type of open shelter inspired by the reconstruction sketch, source: Carlos Almeida Marques Touro Urban Park.

#### 4.3.7.3 Glass covering of mosaics

Another possible approach is to cover the low walls with glass that allows for temperature and humidity control in the interior space as shown below (fig. 38). Visitors can look down at the mosaics from a walkway around the ruins. However, in the example below this floor is enclosed in a sealed and covered building.



**Fig. 38:** left: Glass covering of Roman ruins and walkways at the “museum nucleus of Sembrano Street” Beja, Portugal **Fig. 39:** right image: Reconstruction viewing platform projecting architectural renderings in situ onto a landscape. The visitor can observe the drawing superimposed in the original location, source: Heidentor gate, Austria

Another example of showing the mass of a structure without construction is the 2-dimensional drawing of a structure overlaid on Perspex allowing visitors to visualize a structure in situ (fig. 39). This is particularly useful when there is nothing left of an original structure to understand the volume of the building in the landscape or when building or restoring on site is not an option.

#### 4.3.7.4 Option 3: Seasonal reburying of the mosaics

At the Kato Pafos Archaeological site in Cyprus, a common conservation method used is to rebury mosaics seasonally, each year different mosaics will be viewable, however, this model works best on sites with multiple buildings or floors when visitors will always have something to see (Unesco, 2022).

At the Abicada site, the idea of having a seasonal showing of the mosaics with a period of reburial could be considered if it was financially viable. Another possible advantage would be seasonal management of visitors, perhaps to coincide with strategic habitat restoration or important times of birds nesting, when fewer people in the area would be welcomed. This is an established technique approved by archaeologists and conservators as it creates a stable environment against the deterioration factors that affect the mosaics when they are uncovered (Theodorakeas & Kouli, 2010).

#### 4.3.8 Other Services

The discussion of the opening of the Roman ruins now hinges on the return of the mosaics and their protection. However, in a proposal for the site many other services must be considered such as parking areas, an Interpretation Center promoting all aspects of the cultural landscape, public toilets, information points, signage, pathways and picnic areas. The preferred location of these services will be based on site studies and shown in the final proposal. The image below (fig. 40) of a study group of school children visiting Abicada somewhere between 1960-1970 was found in the Portimão archive and illustrates the educational potential of bringing people to Abicada to share the historical and cultural significance of the site.



**Fig. 40:** Study visit to the Roman Villa of Abicada, source: Photography archive Museu do Portimão, Autor: Francisco Oliveira, date 1960-1970

## **4.4 (B): Management of an Ecologically Protected Site**

### **4.4.1 Methods and Sources**

The Abicada site is protected (Ramsar, Natura 2000, REN) yet there is no tool for habitat management under any of these regimes. The site is not without some oversight, floristic and habitat studies are routinely conducted through the Natura 2000 platform in partnership with academic institutions. Local environmental groups conduct various reports, publications, bird ringings and counts. In considering a proposal for the project, I examined the Habitat Directive legislation and what provisions are included for planning. As all long-term plans for the Roman ruins will bring visitors and recreational tourism to the site it is important to evaluate all factors that are currently impacting and could impact the site in the future. Some current and future pressures include climate change, flooding, overgrazing and other threats to wildlife and plants. Planning and management for tourism growth following sustainability principles can be challenging as the two objectives do not always align (E.U Commission, 2002, p. 86).

### **4.4.2 Value**

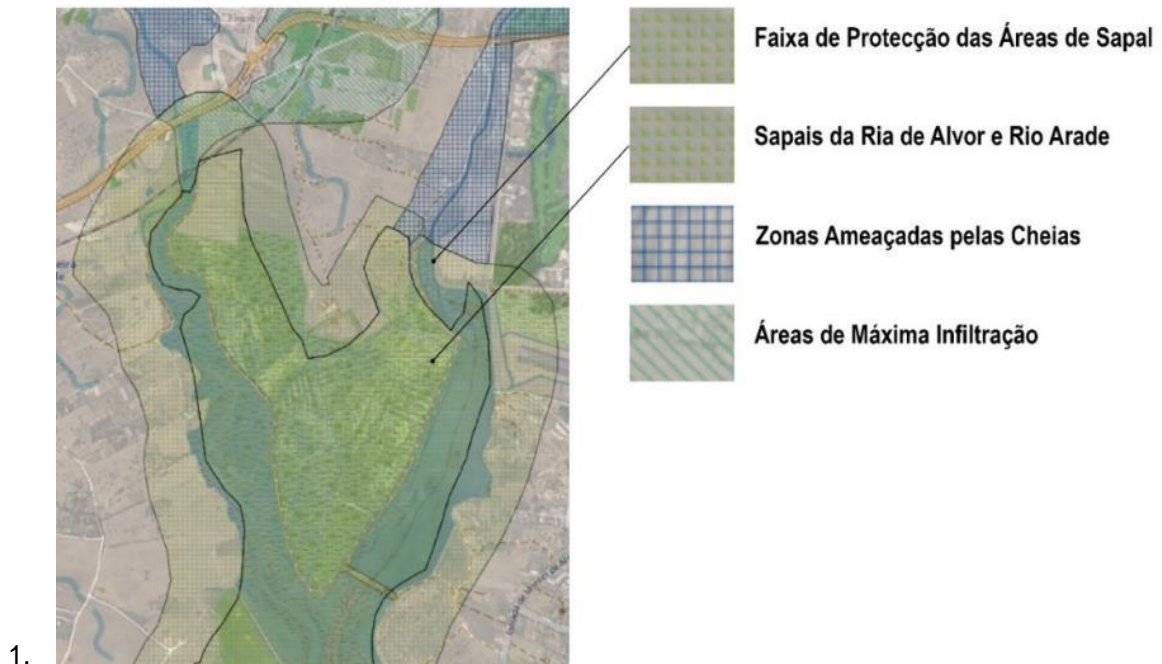
The current site on an undeveloped peninsula, with vast vistas of wetland habitat and mudflats, plentiful birdlife, and views of the Alvor estuary, make this landscape a high-quality visual landscape which in turn encourages recreational opportunities. In the latest report “The State of Nature” by the EEA, (European Environmental Agency, 2020) almost half of all waterbirds, including seabirds, have a poor or bad conservation status. Saltmarshes are highly productive ecosystems, providing resources and conditions for birds to breed and over-winter as well as fish nursery grounds (Barbier et al., 2011). This can also promote environmental education with the creation of bird observatories and panoramic viewing points. Salt marshes provide ecosystem services in the form of tidal defence, water quality regulation and carbon storage (ibid). Reports show the value of the halophyte vegetation of the saltmarsh as a carbon sink, showing that vegetated sediments exhibited carbon enrichment in layers of higher root biomass (Caçador et al., 2016).

### **4.4.3 History of Environmental Protection**

Ria de Alvor was added to the list of protected Ramsar sites in 1996 (RAMSAR, 1997). Saltmarsh habitats are protected by European Environmental Law (Law 140/99 of 24th April – Annex B-1; Directive 92/43/CEE – Annex I). The Alvor River and watershed was added to the Natura 2000 network in 2008. Natura 2000 is the primary mechanism for nature conservation in the E.U to protect against biodiversity loss and protect threatened species and habitats in Europe (Rincón et al., 2019) One of the criteria of Portugal’s commitment within the Ramsar agreement was to “prepare Planning and Management Plans for the wetlands with a view to their sustainable use” (ICNF, n.d.) however this is still not in place for the Alvor River area. The land is protected from large scale development, though the local Government have some autonomy in this matter, interventions and legal action in adjoining areas have originated from local groups when deliberate acts of habitat destruction have occurred (‘A Rocha’ Portugal, 2019; H. Rodrigues, 2019).

#### 4.4.4 REN: National Ecological Reserve

The area of Abicada is also protected by the National Ecological Reserve network illustrated in the Portimão PDM (*Plano Diretor Municipal* -Municipal Master Plan) (fig. 41). There are several layers of protection in the Master Plan, wetland protection (*áreas de sapal*), areas of maximum infiltration which are the areas most suitable for rainwater to recharge the water cycle. High-risk flood zones are primarily situated along the low lying areas of the river Torre next to the Penina golf course. The maps show the whole area as having a high level of protection against development.



**Fig. 41:** Areas protected by the Portimão Municipal Plan: for Abicada, source: CCDR, 2021

#### 4.4.5 Natura and the Habitat Directive

Natura 2000 is at the heart of conservation efforts at an EU level. Article 6 is one of the most important articles in the Habitats Directive as it defines how Natura 2000 sites are managed and protected. However, all documents relating to management such as “Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC”, are mostly concerned with answering questions about the potential development of a site. This informs Environmental Impact Assessments and planning bodies. The only mention of management is Paragraphs 6(1) and 6(2) which require that, within Natura 2000 sites, Member States must:

- Take ***appropriate conservation measures to maintain and restore*** the habitats and species for which the site has been designated to a favourable conservation status
- ***Avoid damaging activities*** that could significantly disturb these species or deteriorate the habitats of the protected species or habitat types (*bold type and italics authors own*) (European Commission, 2018)

## 4.4.6 Protection of Cultural Landscapes

In 1992 the World Heritage Convention declared that cultural landscapes represent the "combined works of nature and of man". Article 1 recognized and protected cultural landscapes for the first time. The term embraces a diversity of typologies recognizing the interaction between humankind and its natural environment. Cultural landscapes often reflect specific techniques of sustainable land use. The protection of traditional cultural landscapes often helps maintain biological diversity (UNESCO, 2021).

## 4.4.7 Habitat and Plant Studies

### 4.4.7.1 Passive Recovery of Saltmarsh

Recommendations from Almeida's studies of saltmarsh reclamation in the Ria de Alvor area (D. Almeida, 2016, p. 25; D. Almeida et al., 2017) concluded that to maximize the results from conservation and restoration efforts in a wetland in the Alvor area, there should be further study on passive recovery and the possibility of active tidal restoration in former reclaimed salt marshes. In Quinta da Abicada and the eastern side of the River Torre, there is almost 100 ha. of abandoned agricultural land which has partially or wholly reverted to saltmarsh habitat. These areas afford exciting possibilities for extending saltmarsh ecosystems which bring so many ecosystem services.

### 4.4.7.2 Habitat Studies within the Natura 2000 network

Article 12 of the Birds Directive states that every 6 years, EU Member States must report on the sizes and trends in populations of birds. Article 17 of the Habitats Directive requires reporting on the conservation status and trends in targeted habitats and species (European Environmental Agency, 2020). The latest EU study reports that over one-third of habitats surveyed continued to deteriorate. During the period March 2020 – June 2020, several days of field studies were undertaken in the SIC Alvor River (PTCON0058) which included the Abicada area, as part of the updating of mapping for Natura 2000 SIC sites in Portugal. The identification of habitats for the study followed the identification processes within the Natura 2000 network (ALFA 2004), bibliographical information on plant communities in Costa *et al.* (2012) and the European Habitat Interpretation Manual (European Commission, 2013). The Abicada area stood out for its poor quality of habitat. The habitat study grades the health of the existing habitat, giving a grade from A-C, guesses the pressures and causes of degradation and asks how easy it is to reverse the damage. Grade C refers to "medium or reduced conservation" (ICNF, 2020, p. 42). These surveys are an important tool to raise a red flag if the habitat is degrading or disappearing but there is no simple process to act on the findings. It is not possible to visit every part of the Natura 2000 network in Portugal, both because of accessibility and limits on how much terrain a team can cover. The level of rigour required to examine plant communities is also time-consuming. Photointerpretation is used for some areas based on similar habitat polygons identified in the proximity. In the 2010 habitat analysis the abandoned agricultural zone next to the Torre river and the golf course (fig. 42) was considered habitat 6420 (Mediterranean rushes, non-nitrophile and non-halophile, with moist and permeable soils with surface water) (ICN, 2005). This is also consistent with the orthophoto map analysis of Almeida for 2010 (D. Almeida, 2016). In a field visit, (April 2021) I observed many large patches of *Juncus*, *Sarcocornia* and other saltmarsh species. In the current habitat map, this area is now considered non-habitat as habitat needs to be defined as a polygon of 1-hectare

minimum with at least 20 metres in width. This sometimes excludes smaller patches which can be useful in passive restoration projects and they can be clues as to the potential of the regeneration and past habitat of a saltmarsh.



**Fig. 42:** To the right of the Torre River, part of Penina golf course, *Juncus acutus* in abundance, this area is not included in the Natura habitat mapping

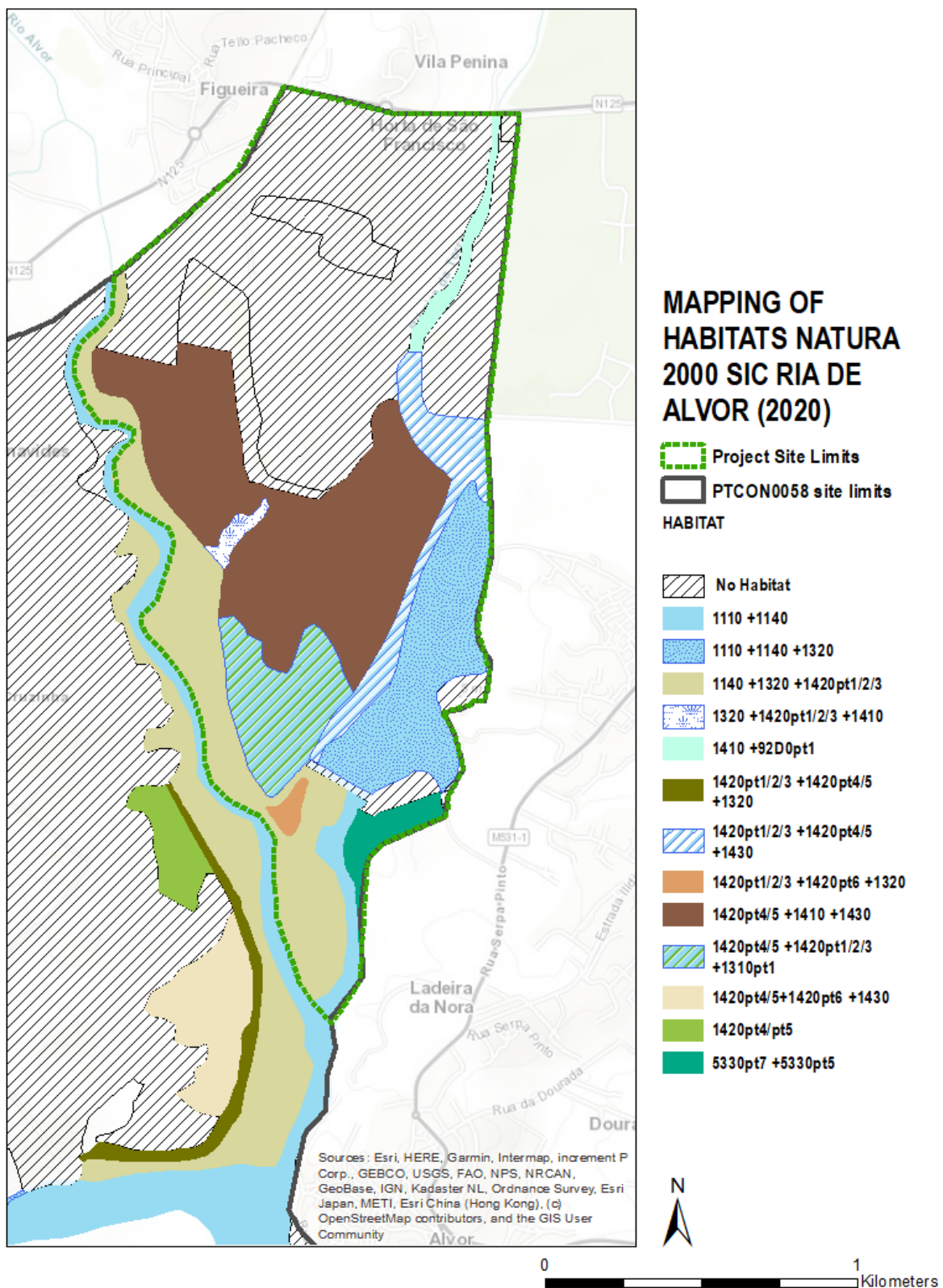
**4.4.7.3 Use of Habitat and Phytosociology**

Habitat description which describes the mosaic of plant assemblages and their associations based on phytosociology is the preferred method to evaluate habitat by the Natura 2000 network (examples of habitat categories shown in fig. 43 below) This methodology is useful as it shows the existing habitat boundaries, priority habitats, places to intervene and highlights neighbouring habitats. With this knowledge, the project limits of this study were extended beyond Abicada to stretch to the Natura 2000 boundary edge to the east and include the lagoon and both sides of the River Torre (fig. 44). The newest cartography (ICNF, 2020) is more detailed than the previous map from 2010, (see Appendix A, fig. 6) now showing 3 categories of habitat, starting with the most abundant.



**Fig. 43:** Habitat Mapping shown on drone image, 2021

#### 4.4.7.4 Habitat Mapping 2020



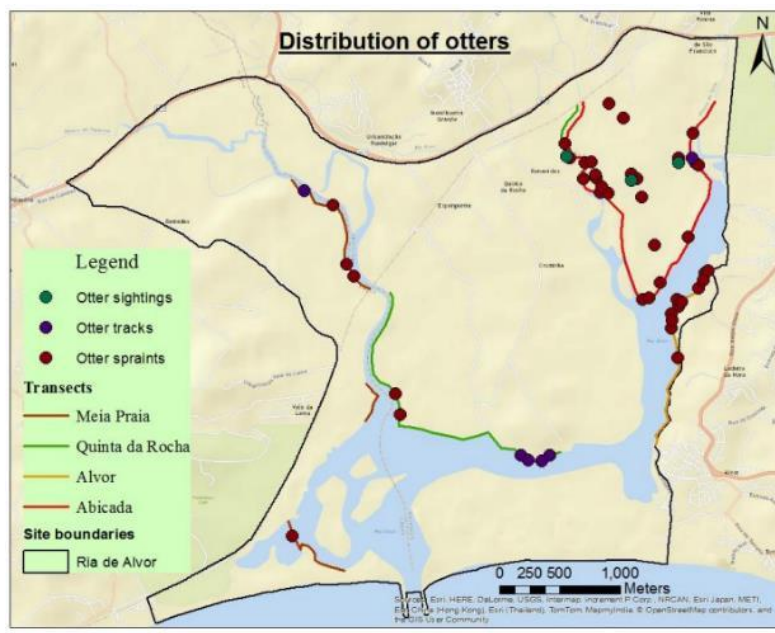
**Fig. 44:** Habitat mapping of Natura 2000 PTCON0058, Alvor river, Source: ICNF, 2020, See Appendix C table 1. for habitat descriptions

## 4.4.8 Fauna

It is not possible within this thesis to catalogue all of the wildlife that is sustained by the Abicada wetlands. I have focused on animals that are priority species for Natura 2000 or are significant in some way to planning for visitors. Conserving and rehabilitating the existing habitats will have a beneficial knock-on effect for an immeasurable number of species. Almost all protection or restoration for fauna will involve habitat. According to Adam (2019, p.820) *“Even when the object of restoration is to benefit a component of the fauna...projects normally involve manipulation of the physical environment and vegetation, rather than involving direct management of animal populations”*

### 4.4.8.1 Eurasian otter (*Lutra lutra*)

Otters are one of the priority target animals on the Natura 2000 list (Chanin, 2003). No nationwide otter census has been carried out since the late 1990s (Pedroso et al., 2014). The otter is listed in annexes II and IV of the Habitat Directive 92/43/EEC, therefore the otter and its habitats must be considered in Environmental Impact Assessments. There are conservation and guidelines to protect the species (ICN, 2006), especially in Special Areas of Conservation (SACs). The image below is taken from a report from 2015 (fig. 45), showing that the main distribution of otters is in the Abicada and Maria Pires area. This has repercussions for hiking trails and general management as they are notoriously shy animals and the concentration in Abicada could be due to the lack of development and access. Their presence can be a good indicator of the health of the wetland ecosystem (Molotoks, 2015).



**Fig 45.** Otter distribution and habitat preference in Natura 2000 site Ria de Alvor, (Molotoks, 2015)

### 4.4.8.2 Shellfish at Abicada

(Antunes et al., 2006) According to a mollusc study in the Ria de Alvor estuary, (A Rocha, 2010) the Quinta da Abicada sampling site found few samples of molluscs possibly due to the distance from the sea and a higher variety and number of species were found closer to the mouth of the river. The very fine sediment found in Abicada is not suitable for burrowing molluscs. However, the molluscs that were

found were considered “sensitive to disturbance in general” which could suggest that the ecosystem was reasonably healthy (ibid). There has been a large decline in the Alvor estuary in the presence of clams which had once been extremely abundant (Mariano et al., 2010). The River Alvor remains an important spawning and nursery ground for many fish species (Antunes et al., 2006).

#### 4.4.8.3 Birds

Studies (Lings, 2005; Scheres, 2005; Simonson, 2004) show that the Abicada wetlands are a locally important site for birds, especially winter migratory wildfowl and wading birds. Within the context of the Ria de Alvor estuary, Abicada was found to have the highest number of several bird species in this category and is a significant feeding habitat for waders. The Abicada site had a total of 86 species recorded in 2005 (124 in a later study until 2017) including 8 birds on the near-threatened list and 2 vulnerable on IUCN Red List of Threatened Species, according to the report (Scheres, 2005) Abicada is the best site in the Alvor estuary for the Spoonbill wading bird. Tidal water enters the lagoon daily regulated by the sluice gates. The changing water levels attract different waders especially at the lowest level when the mudflats are visible. The reed beds and small salt marsh islands are hotspots for nesting birds (ibid). When areas of mudflats were exposed high numbers of waders heavily utilised the area of the lagoon and the smaller islands supported roosting birds. The lagoon zone closer to the bridge creates extensive mudflats at low water which support large numbers of small waders. During a site visit in April, I observed a large flock of flamingos in the Lagoon. Flamingos are a key species for tourism and birdwatching, their presence adding great value to the lagoon. Bird watching shelters should be an important part of any plan for trails as they protect the birds from disturbance while allowing quiet observation (fig. 46).

#### Proposed Birdwatching Shelters



**Fig. 46:** rendering of proposed bird watching shelter, source: Salinas do Samouco, Setubal, May 2021

## 4.4.9 Tourism

Coastal areas are often associated with mass tourism, large scale construction and extensive urbanisation. Despite its proximity to Alvor and its beaches, Abicada has luckily avoided this fate to date. Tourism in an ecologically protected area is associated with appreciating and observing nature, scientific studies and education, along with minimal development of infrastructure (E.U Commission, 2002). The number of visitors to environmentally sensitive areas, in general, are increasing, due to a growing interest in nature all over Europe (*ibid*) There are various definitions and ways to calculate the carrying capacity of a site referred to as the Tourism Carrying Capacity (TTC) and many of the calculations are based on limits of acceptable change (LAC Approach). Another framework is “The Visitor Impact Management Approach” which recognizes that tourist activity will have an impact that the local authority will need to monitor constantly. Limiting the number of visitors is only one of many tools available. This framework outlines unacceptable visitor impacts, forecasts the likely causes and creates a set of actions to address the problems as part of the management plan (Glasson et al., 1995 in EC, 2002). The Abicada site has an advantage in controlling tourist flow because of the physical characteristics of the land spur surrounded by dykes. There are limited opportunities for entry (entrance roads could have gates) and visitors can be kept on trails because of the raised dykes.

## 4.4.10 Pressures and Problems

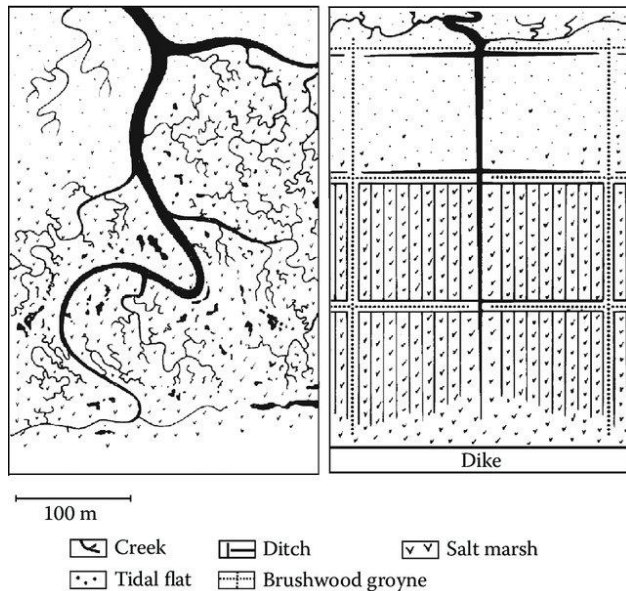
According to the Natura Network Sectorial Plan for the Ria de Alvor, in 2000 the main pressures on the site were “urban-tourist pressure and the related construction interests” creating “degradation and pollution of aquatic ecosystems”. Alvor has pressure from high nitrogen levels because of the proximity to Alvor town (Almeida, 2016, p. 25). Most pertinent to Abicada from this report is the “nutrient loading in the lagoon (due to domestic pollution, swine effluents and fish farms, pesticides from orchards and upstream golf courses and the siltation of the lagoon.” (ICNF, 2000) The habitat study conducted from March to June 2020 (ICNF, 2020, p. 44) noted the poor quality of the saltmarsh vegetation due to the overgrazing and trampling of cattle (fig. 47). These cattle are free-roaming over the saltmarsh area and enjoy the salty taste of the saltmarsh herbaceous plants. Further study would be beneficial to fence parts of the area as control areas to monitor grazing patterns of the cattle and how they affect the variation and growth of the plants such as done in similar studies (Bouchard et al., 2003; Bugalho et al., 2011). To upgrade the quality of the salt marsh, cattle farmers need to be included in any restoration plan for the area as overgrazing will continue to degrade the marshland for the foreseeable future.



On the other hand, managed forage grazing of cattle could have some positive benefits with the possibility of seed dispersal of salt marsh species through cow dung to neighbouring suitable non-habitat heterogeneous sites (Bakker et al., 2008).

**Fig. 47:** *Compacted patches lacking vegetation due to free-roaming cattle in the saltmarsh, March 2021*

Present-day salt marshes in Europe are different from salt marshes of the past, they are smaller, much of the saltmarsh has been reclaimed, and they are less complex and patchier as a result of the manmade interventions of creating straighter channels and less-fractal edges (fig. 48) (Gibson et al., 2007). As most of the Abicada peninsula falls under this category it is important to note that the salt marsh is even more fragile than naturally occurring habitat (ibid). Recreating more natural water lines to increase the fractal edges could be considered as part of a restoration plan.



**fig 48:** *natural river pattern contrasted with dyked landscape, Image IN (Gibson et al., 2007, p. 48)*

#### 4.4.10.1 Mosquitos

As in most marshland areas, mosquitos can be a nuisance, especially in the evening. Mosquitos can transmit disease to humans, livestock and domestic pets. However, mosquito larvae are part of the saltmarsh food chain and are food for a large number of species in this habitat (Adam, 2002). Whether insects would affect visitors to the site is something that should be further studied in the summer months and opening hours (for example keeping opening hours from morning to early afternoon) could be a consideration.

#### 4.4.10.2 Noise and Disturbance

The Abicada peninsula is right across the lagoon from the Portimão Aerodrome. Though a small aerodrome, the Roman ruins and Abicada saltmarsh are in the direct flight path (fig. 49) of these small aircraft. Depending on the season the number of flights flying over the area can be substantial with the associated loud noise and air pollution.



**Fig. 49:** *flight path from the Portimão aerodrome, adapted from source, CCDR Algarve, 2021*

#### 4.4.10.3 Private Property

Landowners as stakeholders are an important component of the management of the Natura site. Private property owners are both constrained by the designation and responsible for maintaining and protecting the site at the same time. Protected sites will usually have prohibitive planning rules and restrictions to



development. However, many other practices such as certain types of water management or land clearance, overstocking of cattle, intensive agriculture etc. are not regulated. There are no criteria or bonuses for enhancement, restoration, or protection of habitat other than penalties for obviously destructive events or illegal development. There is a European Landowners' Organization (ELO) created in 1972 to enhance public participation in the process, and represent the interests of landowners, land managers and rural stakeholders at the European political level (EIONET Portal, 2021) The current owners have a plan online for the Abicada peninsula (fig. 50) that includes a large development on the Northern part of the area including a substantial section of the saltmarsh. The plan proposes the creation of a hotel, touristic apartments, one-family housing, 3 sporting centres, restaurants, observation posts for birds and a farm.

**Fig 50:** *Proposed development Quinta da Abicada, source: Costa Lima Architects, Porto, 2021*

#### 4.4.10.4 Climate Emergency and the Saltmarsh

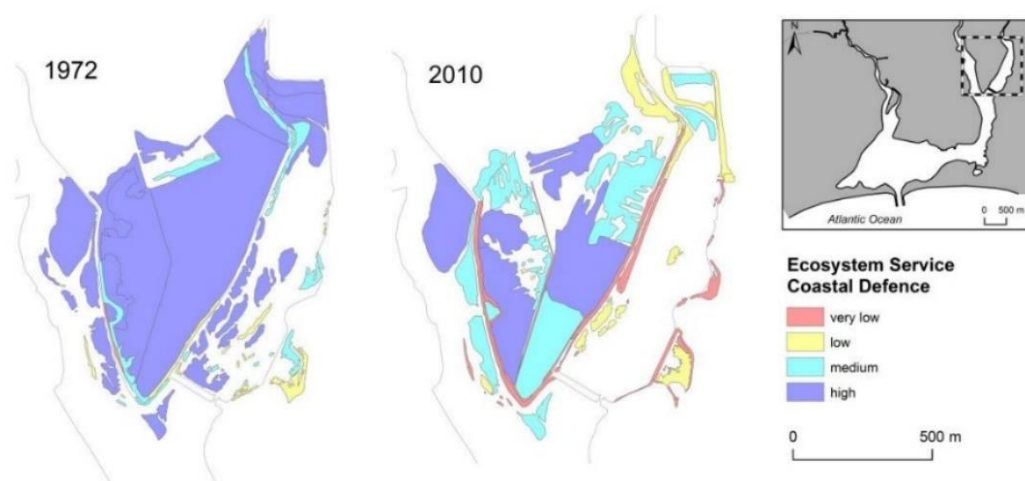
In projections of saltmarsh's adaptability in the face of climate change, greater impacts were shown on the marsh pioneer species, which will affect future marsh establishment (Duarte, 2016). The upper and middle marsh plant will also be negatively impacted. There has been a rise globally in the appearance of resistant invasive species which will further threaten the marsh (ibid). With die-off in part of the marshland, more space will be opened for the resistant invasives, changing the structure and dynamics of the saltmarsh and its services.

#### 4.4.10.5 Flooding

Salt marshes reduce the impacts of wave action by reducing their velocity, height, and duration (Barbier et al., 2011) and are a primary defence against flooding and tsunamis. Most of the site and neighbouring Penina golf course are on floodplains, the majority of which are between 1-3 metres of elevation. The site is dyked along the river Torre and the raised earthen banks surround the peninsula, protecting it from flooding from the sea at current sea levels. Although allowing some water to enter the peninsula to simulate a tidally restored saltmarsh could be a proposed restoration tactic, the saltmarsh would not withstand sustained flooding as witnessed in Quinta da Rocha where the area of mixed reclaimed saltmarsh was destroyed by the breaking down of earthen dykes in 2020. The image below (fig. 51) shows a flooded area of saltmarsh after earthen dyke failure. It has been previously replanted and reconstructed by order of the court after deliberate destruction by owners in 2015. The height of the dykes and their ability to withstand 1-3 metre rise of water level with climate change should be further studied. The illustration below from Almeida (fig. 52), a study of the Alvor river's coastal defence highlights the weakness of the dykes in the current configuration.



**Fig. 51** Destroyed saltmarsh after failed dykes, Quinta da Rocha, 2020



**Fig. 52** Study of Ecosystem Service Coastal Defence at Abicada, Source: (D. Almeida, 2016, p. 114)

## 5. EXISTING INFRASTRUCTURE, CIRCULATION AND ZONING

### 5.1 Introduction

The site is broken down into zones (fig. 58) loosely based on the habitat designations from Natura 2000 (fig.43) so that each zone could potentially have a separate strategy for habitat management, entrances, circulation, parking and views. This chapter also considers the existing built elements and local transportation services.

### 5.2 Infrastructure and Services

The textured, complex landscape of Abicada can instruct us on the story of the Algarve people and their interactions with the land through settlement, agriculture, fishing, bivalve collecting and the resulting patterns in the landscape and habitat. These elements collectively are the cultural landscape. Although the main focus has been on the Roman ruins as a cultural feature, this section highlights some of the other surviving built elements and their importance in any future design.



#### 5.2.1 Agrarian Structures

From the main entrance to the Roman ruins at Quinta da Abicada, there is a grouping of farm buildings and artefacts dating from the early 20<sup>th</sup> century (fig. 53 section a.). According to my interview with an archaeologist from the museum of Portimão (see interview Appendix D), the complex of buildings and artefacts are great examples of agrarian structures from this period and are worth saving. As the last built area before the ruins, they could be developed as ancillary services to the ruins. However, this whole complex is still privately owned.

**Fig. 53:** three main zones of built structures at Abicada



- A: Collection of Water tanks**
- B: Well**
- C: Large Water Tank**
- D: Water Tank**
- E: Eira**
- F: Warehouse**
- G: Water Wheel**

**Fig. 54:** Agrarian structures from Zone A, Abicada, 2020

### 5.2.2 Channel, ditches and aqueducts:

The channels created for the drying out process of reclaiming the saltmarsh have created a distinct landscape that represents the agrarian past (fig. 55) The overground aqueducts are a strong feature in the landscape and the canals have become important for birds and fauna.



**Fig. 55:** Channels, Ditches, Aqueducts from the Agricultural Development Works

### 5.3.3 Terracing and other structures:

To the east of the cowsheds and Roman ruins there is an interesting fortlike feature, probably an old water structure. There is also built several rows of stone terracing which originally had orchards according to historical maps. The stone terraces could be restored and replanted in a farm restoration (fig. 56).



Fig. 56: Terracing and Unidentified Fort-like Water Structure, source: 2020 - 2021

### 5.4.4 Public Transportation

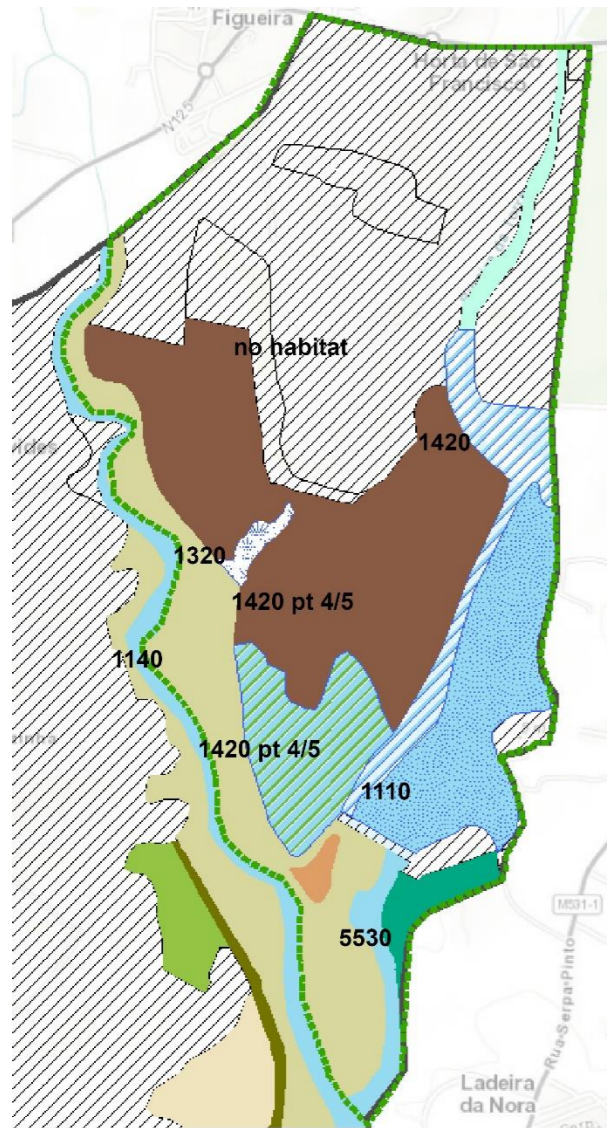
Establishing a link with public transportation is important for a new cultural centre, especially with the train which travels across the Algarve linking almost all of the primary urban centres (fig.57). The route



on foot from the train station at Mexilhoeira Grande takes approx. 35 minutes, initially running along the highway without proper sidewalks. The museum of Portimão is responsible for the Roman ruins and as the current keepers of the mosaics is the natural venue for information, exhibits and education for the site. Buses and guided tours could connect the 2 venues in the future but for the moment they are connected by the train line. The next stop after Mexilhoeira Grande on the train is the town of Lagos. Several local buses stop close to the main site entrances from the EN125.

Fig. 57: public transportation serving Abicada

### 5.3 ZONING BY HABITAT



**Primary habitat mapping for Natura 2000 SIC Ria De ALVOR (2020) (for full map see fig.44)**

**no habitat:** Does not fit within the natura definition for habitat

**1110:** Sandbanks permanently covered by shallow seawater

**1140:** Mudflats and sands uncovered at low tide

**1320:** Spartina meadows (*Spartinion maritimae*)

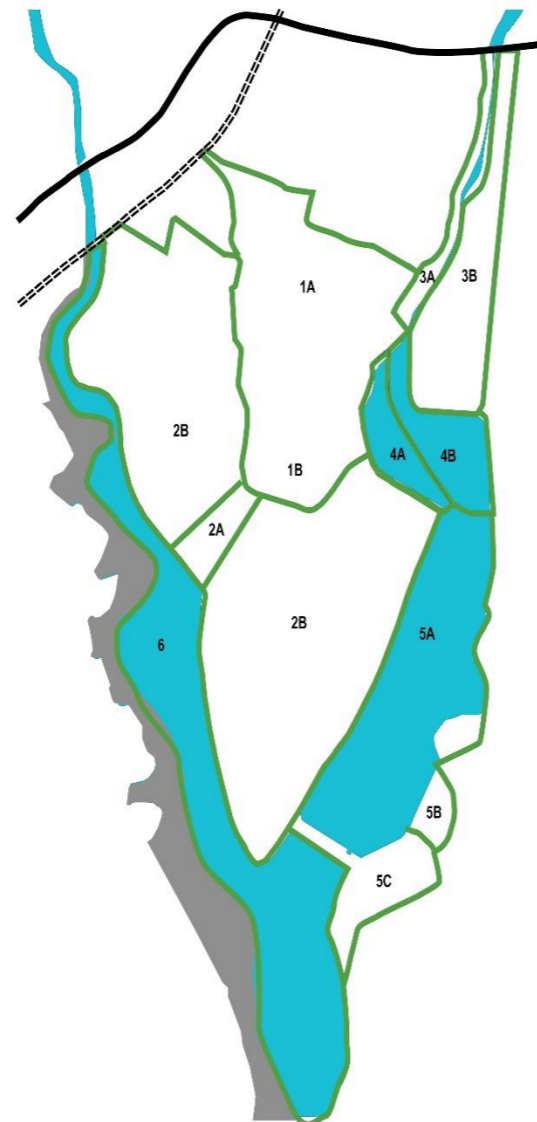
**1410:** Mediterranean salt meadows (*Juncetalia maritimi*)

**1420:** Mediterranean and thermo-atlantic halophilic scrubland (*Sarcocornietea fruticosi*)

**1420 pt4/5:** Upper marsh of *Arthrocnemum macrostachyum* and communities of *Suaeda vera*

**5530:** Scrubland thermo-mediterranean pre-desert

**Fig. 58:** Site overview and zoning scheme 1-6, potential parking areas and entrance



**Zoning based on a combination of habitat, natural limits and infrastructure, such as existing pathways**



**N** habitat zones    **n** existing entrances    - - - - saltmarsh perimeter pathways    - - - - secondary pathways

#### Zoning Overview

##### 1: Farmland

1A: Farmland, scrub, some trees, remains of terracing. Habitat for Quail and Red-legged Partridge. Historical fruit orchards. No habitat in Natura mapping.

1B: Cultural built zones, Roman ruins and trails.

##### 2: Saltmarsh

2A: Spartina marshlands

2B: Saltmarsh, low pools, vegetated ditches, large unvegetated patches, low quality habitat.

##### 3: Riverwalk

3A: River entrance and walk Abicada or Penina side.

3B: Penina recovering saltmarsh and mixed woodland, reedbeds, pasture and Juncus.

##### 4: Dyked salt marsh

4A: Low-quality salt marsh. Overgrazed.

4B: Adjoining healthy high-quality salt marsh - tidal

##### 5: Lagoon and adjoining areas

5A: Dyked lagoon. Bird feeding area

5B: Adjoining primary saltmarsh area

5C: Hiking and trails, hills views.

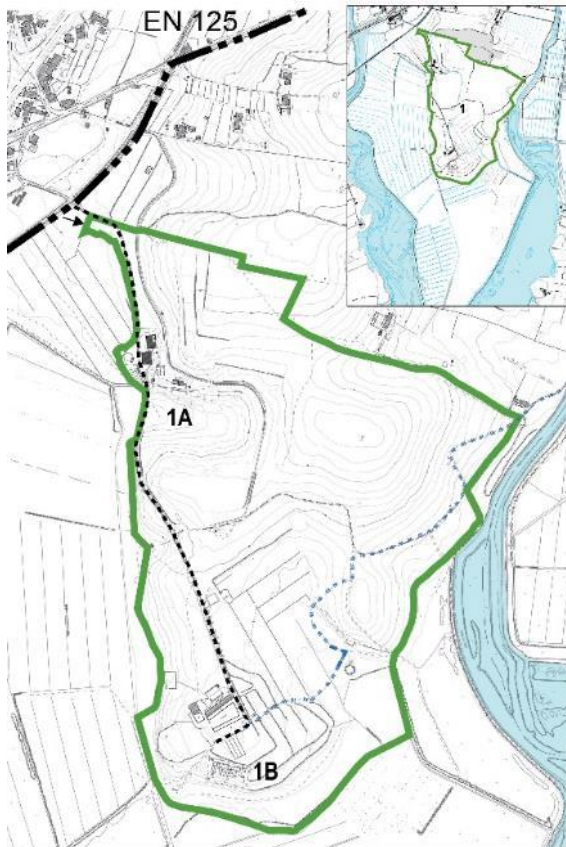
##### 6: Mudflats

Saltmarsh islands and mudflats, bird feeding area

**Fig. 58:** Site overview and zoning scheme 1-6, potential parking areas and entrance

## 5.4 Problems and Potential per Zone

### 5.4.1 Zone 1: Farmland: Agrarian and Archeological Trail



**Zone 1A** is mostly agricultural land. It is limited by the trail (blue dotted line) (fig. 59). The current entrance to Abicada is located off the EN 125. The dirt road is un-marked and was roped off on all visits to the site (fig. 60). The road runs north through an old farm with outhouses, grain sheds, drying platforms, wells and water storage features (fig. 61). Beyond this cluster of buildings, there are further agricultural fields and terracing closer to the ruins running parallel with the entrance road.



**Fig. 59:** Zone One and primary entrance

**Fig. 60:** main entrance road roped off, 2020



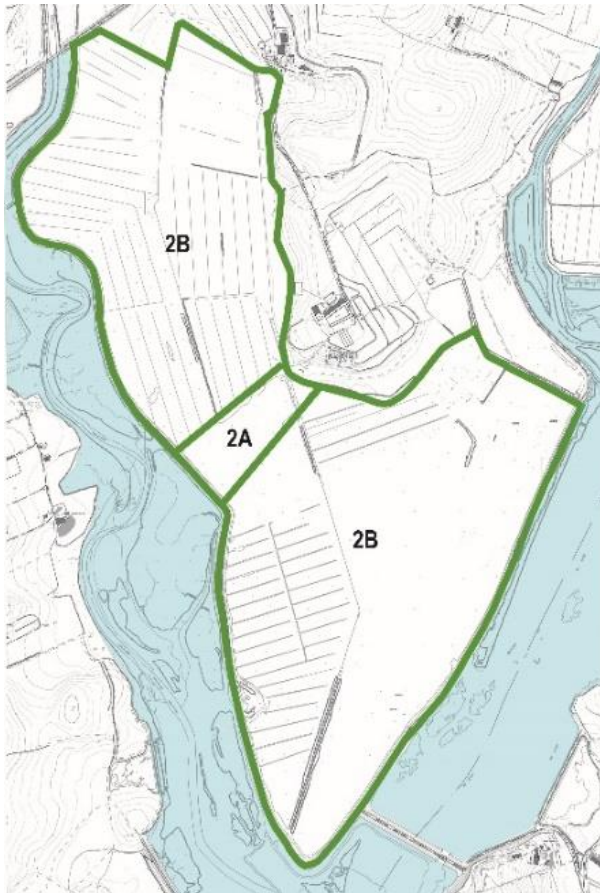
**Fig. 61:** 3D Google Earth rendering of farm building south of ruins.

**Zone 1B** This area includes the Roman ruins and cowsheds. The potential and problems of the ruins have been discussed in detail in the previous chapters. The images below (fig. 62) illustrate the current state of the buildings directly behind the ruins which are impacting the visual quality of the site.



**Fig. 62:** *Clandestine cattle station, April 2021*

## 5.4.2 Zone 2: Saltmarsh



**Fig. 63:** *Zone 2: Saltmarsh*

**Zone 2A:** The *Spartina* and *Juncus* marshlands (*Spartina maritima*, *Juncus maritimus* and *acutus*), are an isolated unit within a largely homogenous landscape of saltmarsh. This small rectangular shaped area is delineated by the ditches constructed for the rice fields (fig. 63-64). This small 3 ha. area has different plant species from the rest of the saltmarsh and possibly has access to a spring or another freshwater source. The ditching in this area was less dense than the surrounding salt marsh which allowed for larger pools of water to collect.



**Fig. 64:** *Unique habitat of zone 2A, Spartina marshlands, looking east to the Roman ruins*

**Zone 2B upper and lower:**

Zone 2 upper and lower consists of about 80 hectares in total with the largest area of saltmarsh on the peninsula. It is a fairly homogenous, low-quality habitat due to overgrazing and the historical ditching to drain the land from the 1950s. Many of these ditches have standing water and some are important habitats for waterbirds and fauna. There are very few plant species for such a large area with a predominance of *Sarcocornia perennis* and many barren patches with occasional standing pools of water. Invasive and ruderal species have begun to dominate some areas.



**Fig. 65:** *Zone 2B looking north over saltmarsh*

The dykes surrounding the land spur are occasionally used by hikers and walkers (fig 66-67)



**Fig. 66:** *western raised dyke, 2021*



**Fig. 67:** *southern tip, dyke facing east, 2021*

### 5.4.3 Zone 3: Riverwalk, Penina woodland and recolonised agricultural land

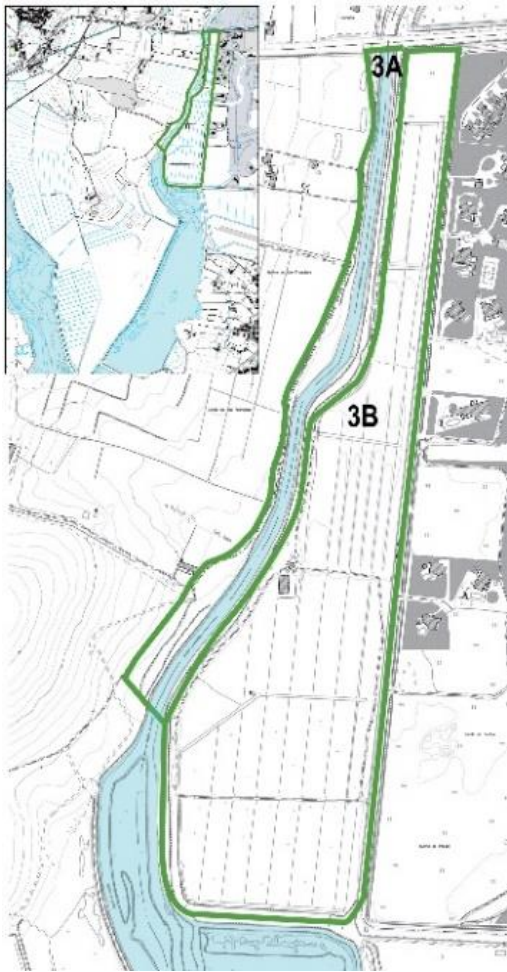


Fig 68: Map of Zone 3

#### Zone 3A:

The Abicada peninsula can also be accessed from the EN 125 along the river Torre. Although the Torre has been changed drastically from its original shape, the river has lots of potential as a nature trail (fig. 70) with many birds and fish to be observed. Entering the Abicada peninsula along the river could be a viable alternative to the current main entrance. On the east of the river Torre there are *hortas*, orchards, wasteland and abandoned warehouses and trash strewn along the river edges. An abandoned warehouse and parking lot could be reused for parking (fig. 69) located 600 metres from the ruins.



Fig 69: River Torre east side, Abandoned warehouse and debris

#### Zone 3B:



Fig. 70: River Torre, riverbank walk, 2020

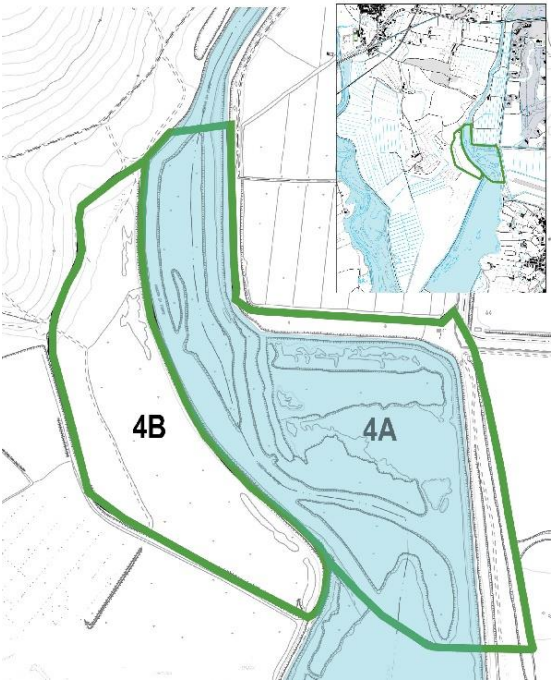
This undeveloped area of almost 14 hectares (fig. 71) is a buffer zone between the river and the Penina golf course. This area was reclaimed for agriculture but also planted along the borders and dykes with trees. It is a self-contained area separated from the golf course by a minor road. The raised walkway along the river is completely overgrown but could easily be restored to a useable trail. The current use of the land includes cattle shed and grazing for cattle in some areas. The historical reclamation from saltmarsh was not

entirely successful with fields of *Juncus acutus* and *Juncus maritimi*, *Sarcocornia perennis* and other related species. This is most evident along the still existing draining ditches. The potential of this space as a nature park, trail and supporting habitat is high, especially given its proximity to the Abicada peninsula and its inclusion and protection within the Natura 2000 limits. For these reasons, this area is included in the project limits. There is a strong possibility of pollution in the water from the golf course development (based on site observations).



**Fig. 71:** Penina River buffer area – zone 3B, wetland species recolonising agricultural land

**5.4.4 Zone 4: Northern end of Enclosed Lagoon**



**Zone 4A:**

At the tip of the Penina golf course and walking along the River Torre arrive at the lagoon (fig. 72), with breathtaking views of high-quality salt marsh. This site is accessed from the raised dyke running along with the river or by a through-road running along the western edge of the golf course. Zone 4A is a great example of a healthy habitat with many of the associated plants visible (fig. 73). Currently the raised dyke is impassable because of overgrown vegetation. There is a concentration of wildlife because of the high quality of habitat and its relative isolation as a destination which should be taken into consideration with the creation of trails.

**Fig. 72:** Zone 4: North Lagoon



**Fig. 73:** top image, panoramic north lagoon, 2021 **Fig. 74:** bottom left, north lagoon, 2021 **Fig. 75:** bottom right image, north lagoon source: Ana Rita Pina, March 2020

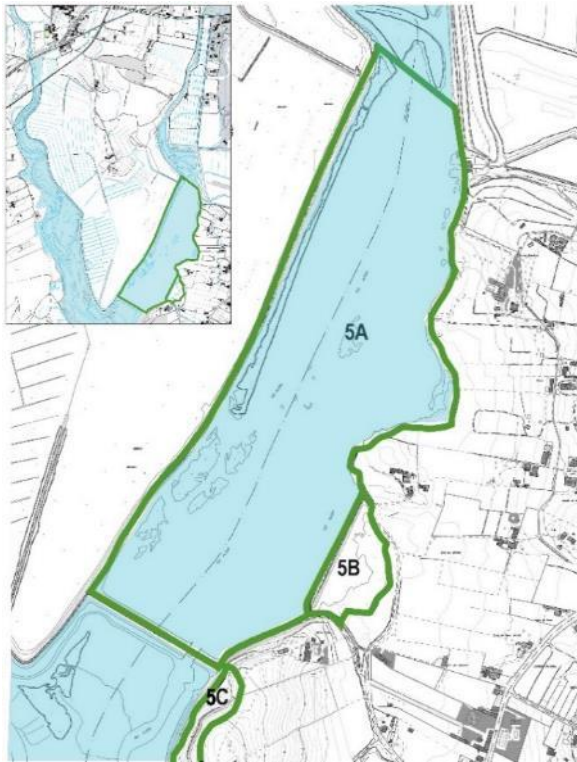
**Zone 4B:**

This area was graded as an extremely poor habitat in the 2020 Habitat mapping (fig 44) because of overgrazing. The number of saltmarsh species is limited and ruderal plants are taking over the drier areas. Zone 4B is directly adjacent to some of the best salt marsh habitat at Abicada (zone 4A) located on the other side of the river therefore protected from cattle and is restored each day by the tides from the sluice gates of the bridge. Looking at historical maps, the degraded area of zone 4B was attached to the healthy saltmarsh until late 1950s when it was reclaimed by the governmental agricultural works.



**Fig. 76:** image 1: 1958 ortho shows zone 4B part of the lagoon), image 2: 1951 land use map (Sp refers to saltmarsh), image 3: 2020 survey overlaid to show new dyke walls, image 4: zone 4B & 4A

## 5.4.5 Zone 5: Enclosed Lagoon



**Zone 5A** ( fig. 77): The lagoon is a large body of water enclosed at the southern end by a bridge. It attracts wading birds, especially at low tide, including flamingos visiting in the early summer. It can be accessed by taking the exit for Maria Pires from the road to Alvor. This bridge entrance could also connect to Abicada and to the Roman ruins walking along the dykes (it does not currently as is cut off by canals).

**Fig. 77:** Zone 5, The lagoon and saltmarsh islands.



**Fig. 78:** views of the lagoon from the bridge, Alvor side, looking to Abicada

### Zone 5B

**Zone 5B** and the area now used for the aerodrome, are remnants of salinas which, as discussed in earlier chapters, were an important part of Alvor's history and once overseen by royal decree (fig 79).



**Fig. 79:** left, maps 1886, 1932, 1951 evolution of Alvor's royal Salinas

The Salinas were active until at least the 1950s. The area was dyked along the lagoon edge during the agricultural works and became an enclosed saltmarsh and now functions as a primary salt marsh (fig. 80). The zone was for sale for development (March 2021) though protected by several different environmental zoning laws. Areas 5B and the aerodrome fields were historically important salt pans, installing educational information regarding the historical past land use is advised.



**Fig. 80:** view from dyke to zone 5B

**Zone 5C:** This hilly area to the left of the bridge corresponds with habitat 5330pt7 and 5330pt7 (Pre-desert thermo-Mediterranean shrubland) the only area where *Thymus camphoratus* (Natura 2000 protected list) was found within this project limits. The hill trials afford fabulous views of the Alvor harbour (fig. 81), the mudflats and Abicada peninsula. Maintaining clear trails and protecting the fragile *Thymus* are the main priorities in this zone.



**Fig 81:** views from the bridge to trail entrance and view from hills to bridge, 2021

## 5.4.6 Zone 6: Mudflats and Farelo River Western edge

The river Farelo separates the Abicada landmass from Quinta da Abicada to the west. These mudflats and saltmarsh islands are a rich feeding ground for wading and seabirds. At low tide, local bivalve collectors can be seen picking clams. The shape of this river has changed a lot less over time than the Torre, however, there has been a buildup of sediment and saltmarsh over time making it less navigable (fig. 82-84).



**Fig. 82:** left Zone 6, **Fig 83:** right image, mudflats southern tip of Abicada looking at the Alvor estuary, 2021



**Fig. 84:** drone image of River Farelo looking towards Quinta da Rocha, source: Lopes. V. 2021

## 6. PROPOSAL AND RECOMMENDATIONS

### 6.1 OVERVIEW

The historical research and site analysis from the previous chapters form the basis of a proposal for interventions at the project site. The goal of the proposal is to protect the saltmarsh habitat and improve visitation in preparation for the National Monument's opening to the public. Breaking the project site into zones loosely based on habitat and physical boundaries allowed for more targeted interventions. Looking at the zones more broadly beyond their specific designation within the Habitat Directive Framework allows the flexibility to include adjoining areas which have the potential of enlarging healthy habitat areas. Healthy habitat has the knock-on effect of improving many ecosystem services. Finding suitable areas for saltmarsh restoration and areas needing improvement was a top priority (fig. 87).

**Proposed Water changes:** The canal and ditch system created to drain the land for agriculture restructured many of the original water lines. A tributary of the Farelo River was an important stream dividing the land spur. Restoring this stream would increase the health and resilience of the river and habitat system (fig. 85). Removing some of the ditches in the vicinity would allow larger surfaces of land and seasonal ponds to form. The adjoining agricultural land at Penina has many small patches of healthy saltmarsh and could be restored in part (removing some ditches, fencing cattle) allowing water to collect in ponds where they had previously existed (fig. 85). This land is protected by Natura 2000 and cannot be developed. Attracting wildlife and actively restoring this area has the added advantage of acting as a buffer zone during flooding as this area is a flood risk for the Penina golf course and resort.

**Circulation:** Although protected, without a management plan the fragile flora and fauna are easily damaged. The main motivation for circulation is to prioritise keeping visitors to pathways, avoiding disturbing birds and trampling plants. Creating a continuous circular raised pathway by enlarging the existing dyke and canal system is key to isolating one of the largest areas of saltmarsh completely and providing visual access to the site. Presently the canals do not completely cut visitors off from Abicada and are broken down in several places. Enlarging the canal and fixing and formalizing the earthen dyke will create a trail with breathtaking views while future-proofing the area against inundations from broken dykes which can kill the saltmarsh. It has the added benefit of keeping the free-roaming cattle from the area without ugly fencing. A section of the trail where no dyke exists (the southern part of the walkway) is designed as an elevated walkway, maintaining views and keeping visitors above water level. The formalising of all the roads and trails in the greater zone gives more control over visitor access which is important in sensitive areas.

**Services** As the site has both important cultural and environmental elements, educational material is key. The zone directly adjacent to the Roman ruins should be given budget priority for formal pathways, recreational areas and a possible interpretation centre. A basic proposal for siting these services is suggested (Fig. 86). Signage is suggested close to entrances and points of interest both directional and educational (archaeological, historical, wetland beauty and function, animal and plant information). Abicada attracts bird watchers and adding shelters can allow this activity with low disturbance.

**Parking:** Different options for parking are suggested based on suitable available space that is currently urbanized, close to the entrances and at the most 500-600 metres from the Roman ruins.

## 6.2 PROPOSAL FOR WATER CHANGES

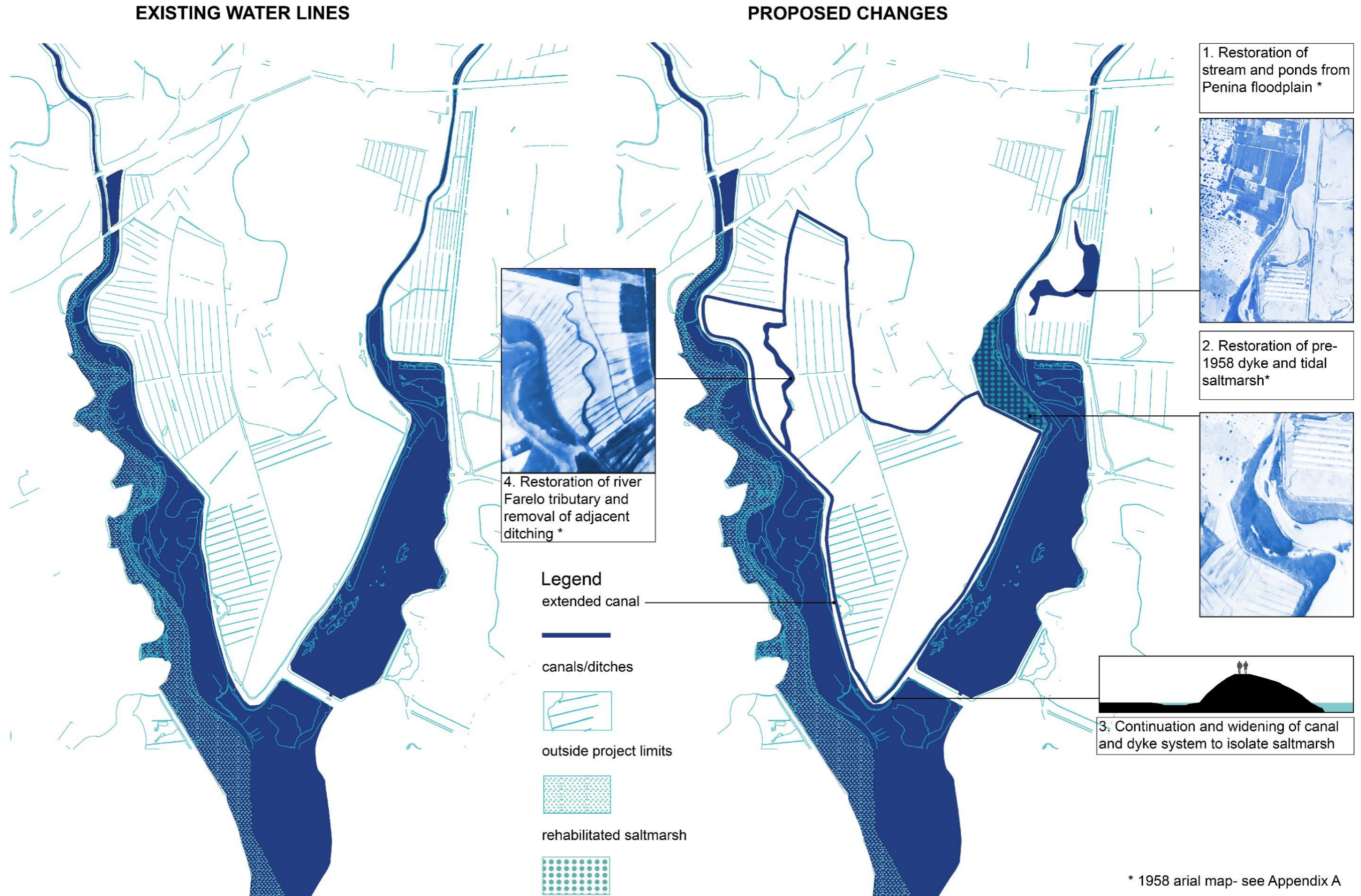


Fig. 85: Existing and Proposed changes in Water Changes

### 6.3 PROPOSAL FOR NEW INFRASTRUCTURE AND CIRCULATION



Figure 86: Existing and Proposed changes in Infrastructure and Circulation

## 6.4 PROPOSAL BY ZONES

### ZONE 1A

Farm Complex: Re-use buildings and artefacts for environmental and historical exhibits. Situated 600m from the Roman ruins, parking (A) will encourage recreational walking. Roman ruin area: remove cattle sheds, build simple interpretation centre and picnic area. Restore terraces with mixed fig, fruit or olive trees as part of an agrarian restoration.

### ZONE 1B

Trail from ruins to lagoon and Torre river walk passes fort and terraces ends at parking (C) or (D). Elevated pathway and canal at southern limit keep visitors from entering the saltmarsh.

### ZONE 2A

This area is a valuable habitat for many waterbirds. Because of its proximity to the Roman ruins, it is should be isolated from foot traffic from the north (new canal and south existing canal and dyke). Prime bird watching shelter location.

### ZONE 2B

This largest extent of saltmarsh could be transformed by fencing from cattle. The cattle currently can cross the perimeter canals at places so fencing them out is preferable.

### ZONE 6

The mudflats are important bird feeding habitat. Maintain and monitor protections on the Quinta da Rocha side to avoid pollutants from agriculture and loss of saltmarsh from changing land use.

### LEGEND

entrance	↓
parking	(N)
signage	(S)
bird watching	⊙
dyke path	▬
trail	⋯
elevated walkway	▬
road	▬
zone limit	▬ XX
canal	▬
outside limit	▬
habitat protect	▬
cattle fencing	▬
intervention	▬



### SALTMARSH

Fencing zone two from cattle would have an immediate positive effect. The possibility of a restoration plan with minor breaching of dykes could transform the salt marsh into a tidally restored marshland. The subject of transforming an enclosed saltmarsh to a tidally restored one is discussed in more detail by Almeida (D. Almeida, 2016) and would require further studies. Any improvement in the functioning and health of the saltmarsh would bring enormous benefits to all its ecosystem services. Canals are currently running along the dykes which is a deterrent against crossing onto the peninsula. This canal could be enlarged and used as a future management tool to direct foot traffic away from the main saltmarsh and keep visitors on the raised dyke where they can enjoy views and nature without trampling through fragile habitat and disturbing nesting birds. The raised dykes are already used as an informal walking trail by walkers and cyclists. Small changes to the paths could formalize this as an official walking path along with signage and educational material.

### ZONE 3A

Clean the wasteland, abandoned warehouses and trash strewn along the river edge on the Abicada side of river. Located about 600 metres from the ruins, an abandoned warehouse and empty lot could be used for parking (C). Remove the borders of the exotic *Casuarina equisetifolia* and replant with *Tamarix africana* to improve quality of the habitat (habitat 92D0). These paths provide a scenic shaded hiking trail to Abicada. Cut back overgrown reeds

### ZONE 3B

Formerly floodplains, now abandoned agricultural land owned by the Penina golf course. Saltmarsh returning. Recommend restoration to improve water quality, fence off cattle, construct depressions in land for water collection and saltmarsh restoration using location of historical waterlines and ponds.

### ZONE 4A

Recreating the pre-1958 original dyke would facilitate a larger area of high-quality salt marsh. It would however reduce the amount of land for agriculture by giving this small area back to the tidal flow regulated by the sluice gates at the bridge

### ZONE 4B

Clearing of vegetation would make the dyke on the northern limit a useable trail again. Locate a bird viewing shelters here as this is the best quality saltmarsh with views of the lagoon and river

### ZONE 5A

Optimal viewing area for birders. It would benefit greatly from signage or observation shelters.

### ZONE 5B and 5C

Areas 5B and the aerodrome fields were historically important salt pans. Install educational signage regarding past land use. It is a functioning self-contained primary saltmarsh. 5C: Maintaining clear trails and protecting the fragile *Thymus camphoratus*.

Figure 87: Proposal by zones

## 6.5 RECOMMENDATIONS

<b>1</b>	<b>Archaeological Site</b>
<b>1.1</b>	<b>Purchase of land:</b> Extend the area of the site to include the pars Rustica”, corridor to the west of the ruins and along the old harbour wall by obtaining the rights to some of the adjacent land to the site. If the wetland area is heavily regulated with environmental protection (as it is) the monetary value of this section of the site for development purposes should be diminished allowing for the possibility of a State purchase.
<b>1.2</b>	<b>Restoration of mosaics.</b> This work should be a priority starting with those in the worst state, (Varelo Gomes, 1986). Restoration would be done in the museum before considering the return.
<b>1.3</b>	<b>Return of Mosaics:</b> The return of the mosaics is contingent on a shelter structure. This should be designed to prioritise visual and environmental impact, making the shelter as invisible as possible in the landscape. The design for the shelter could be outsourced to an international architectural competition.
<b>1.4</b>	<b>Expert Team:</b> Over the years there have been many students (both Portuguese and International) and experts who have some familiarity with the site, either working on the site, or in the area, or with the material exhumed. A group could be formed to share information and advocate for further archaeological study, also to advise on the next steps for the site.
<b>1.5</b>	<b>Further Studies:</b> The maritime villa was strongly linked to its position at a river edge by the economic livelihood of the settlement. For this reason, more excavations in the surrounding area to investigate the seed bank of the original vegetation could shed light on the lives and landscape of Roman Quinta da Abicada and their experience of living at the edge of an estuary
<b>1.6</b>	<b>Further Studies:</b> The site at Abicada has a sister site at Boca do Rio, Budens, approx. 30 km west along the coastline. Both sites have been investigated for their archeological ruins, their Roman mosaics and their relationship to marine resources. Boca do Rio is also a protected area and saltmarsh habitat. Their similarities offer an opportunity to investigate their possible connections and potential.
<b>2</b>	<b>Saltmarsh Habitat: Further Studies</b>
<b>2.1</b>	Further studies are recommended by using small areas of fencing to observe how the habitat responds.
<b>2.2</b>	<b>Floristic studies:</b> From Natura 2000, “Take <b>appropriate conservation measures</b> to <b>maintain and restore</b> the habitats and species for which the site has been designated to favourable conservation status. New floristic studies on Quinta da Abicada were beyond the scope of the thesis but further explorations could help with monitoring the health of the habitat over time.
<b>2.3</b>	<b>Experiments with dyke breaching:</b> Further studies could allow tidal water to enter the land spur to restore areas of degraded, dried out habitat. The topic of transforming an

	enclosed saltmarsh to a tidally restored one is discussed by Almeida (D. Almeida, 2016). Improvements in the health of the saltmarsh bring enormous benefits to all its ecosystem services.
<b>2.4</b>	<b>Freshwater saltmarsh:</b> It would be useful to study the small freshwater rectangular section (zone 2A) to see why it is a separate habitat and if is fed by underground streams or springs.
<b>3</b>	<b>Education and Communication</b>
<b>3.1</b>	<b>Publicity material:</b> Currently, the monograph of Abicada is available only in German and Spanish. Publications should be produced in Portuguese and English (and other languages).
<b>3.2</b>	<b>Fundraising:</b> crowdfunding campaigns could be launched to purchase land, complete restoration work, produce publicity material and engage the public.
<b>3.3</b>	<b>New Media:</b> Environmental challenges require new interdisciplinary models of communication and education (Borden, 2019). ArcGIS story maps, social media, photography can all reach new audiences.
<b>3.4</b>	<b>Signage:</b> Directional and informational signage from main entrances and main roads to Quinta da Abicada from EN125 and Alvor town are needed as well as educational signage on the archaeological site and the trails. Types of information: Historical, archaeological, list of birds, saltmarsh history and cultural landscape.
<b>4</b>	<b>Further Connections</b>
<b>4.1</b>	<b>Riverbank restoration.</b> Further exploratory studies along the River Torre's original navigable route could connect Alcalar and Abicada with a hiking trail (1.5 hours walking approximately). The 2 sites' relationship to the cultural landscape of the Alvor river watershed, should be considered in the plans for Abicada (Appendix A, fig. 6).
<b>4.2</b>	<b>Salt pans:</b> The greater area of the Alvor River estuary has many abandoned saltpans (located at Quinta da Rocha). Educational tours or birdwatching in saltpans could be twinned with Abicada tourism.

## 6.7 CONCLUSIONS

The maritime villa of Quinta da Abicada no longer sits at the edge of the river, the decorated floors are in storage waiting for the funds for further restoration, sedimentation has built up in the landscape surrounding the ruins with saltmarsh and other habitats. Looking back through history and forward to the future, one constant is the always changing landscape. Whether the Romans at Abicada grew vines for wine, tended orchards, salted fish, or enjoyed oysters and clams, we can only make educated guesses, but the privilege and beauty of their choice of location is not in doubt.

It is remarkable to find such a large area of land so close to Algarve's golden beaches and tourist attractions that has been left undeveloped for so long. As the future is predicted to be hotter, with more floods and more drought, wetlands will be our first line of defence, the vanguard of the river and ocean edge. Yet these reconstructed dyked wetlands are fragile and susceptible to change. This means vigilant oversight, monitoring, management and intervention.

In its current state, Abicada is a haven for visiting and resident birds, including the popular visitor the flamingo (fig. 88). However, this small section of the Natura 2000 Alvor River site could be easily disturbed with the wrong interventions. The possibilities for Abicada are exciting, a wetland reserve, an archaeological nature trail, a restored maritime *villa* in nature with educational services. a place to contemplate the past and survey the vast beauty of the estuary. The two most pressing issues are the degrading of the salt marsh by cattle and the return of the mosaics to the Roman site. Without the constraints of budget, pressure from speculative development and complications of ownership, this exploratory study is at liberty to make best-case scenario recommendations in the hope that they will be useful for the future planning of Abicada.



**Fig. 88:** Left image, cow contemplating the view of the saltmarsh. Image source: Marie Wijnsma  
Right image: Flamingos (*Phoenicopterus roseus*) and black-winged stilts (*Himantopus himantopus*) feeding in zone 2A on the Abicada peninsula. Image source: G.RÉTHORÉ, A Rocha Life

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# APPENDICES

## Appendix A: Maps

MAP	DATE AND SHEET NUMBER
Carta de Portugal 1:100 000, (Military Chart) Direcção Geral dos Trabalhos Geodésicos do Reino	<b>1884</b> No.36
Direcção Geral dos Trabalhos Geodesicos e Topographicos. Datas de levantamento: 1884; publicada reimpressa com estradas a vermelho, em 1944 pelo Instituto Geográfico e Cadastral, Lagos, 1: 100 000	<b>1944</b>
Direcção Geral dos Trabalhos Geodésicos e Topográficos, Carta de Portugal 1:50000	<b>1923</b> (folha 52A) <b>1930</b> (folha 49C)
Carta Agrícola e Florestal (1:25000)	<b>1951</b> folhas 603 e 594
Carta Militar do Portugal escala 1: 25000	<b>1955</b> 52A , 49C
Aerial Map: USAF Geográficos Aerial photos	<b>1958</b>
Carta da capacidade de uso do solo (escala 1:50 000)	<b>1959</b> 52A
Carta Corografia de Portugal escala 1:50000	<b>1963</b> 52A , 49C
Ortho-photomap July 1977, museum of Portimão archive 1:5000	<b>1977</b>
Carta Militar do Portugal escala 1: 25000	<b>1979</b> 52A , 49C
Aerial maps <a href="http://cgpr.dgterritorio.pt/Fototeca/index.html">http://cgpr.dgterritorio.pt/Fototeca/index.html</a> 2002, 2018: <a href="http://mapas.igeo.pt/">http://mapas.igeo.pt/</a>	<b>1963, 1972, 1982, 1995</b>  <b>2002, 2018</b>
2020 survey CAD file, Portimão Camara	<b>2020</b>

**Table 1:** List of maps, orthophoto maps, aerial photography, and surveys.

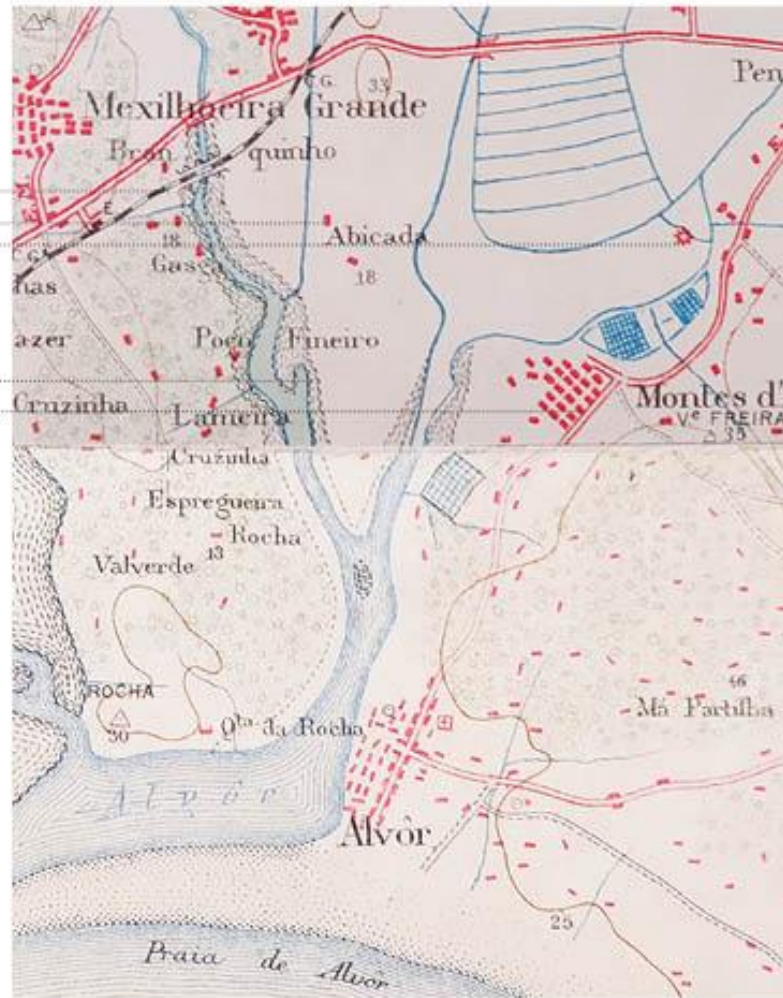


Fig. 1 : 1884 full map: Carta de Portugal 1:100 000, (Military Chart) Direcção Geral dos Trabalhos Geodésicos do Reino, #36



**Legend**

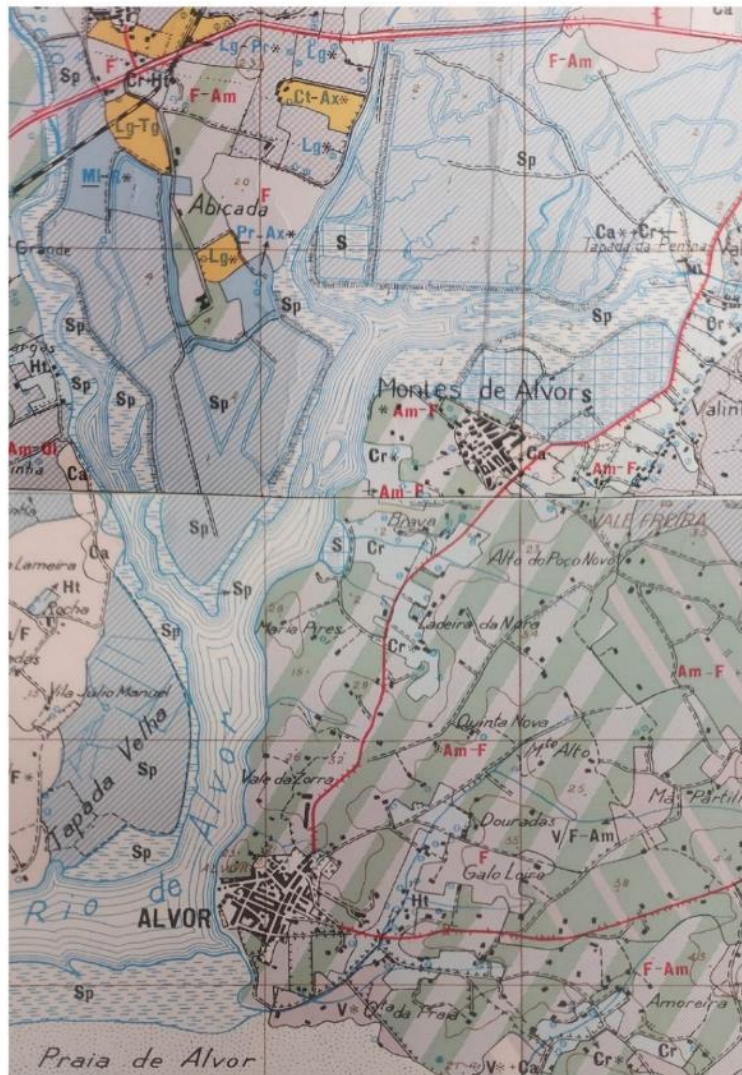
- Tapada da Penina
- aluvial plains
- trees/orchards
- new train line
- 20th century farm
- water mill
- probable location of Roman ruins
- old salinas
- possible early dykewalls
- marshland
- Montes de Alvor and Vale de Freitas (hortas)
- old salinas



Direcção Geral dos Trabalhos Geodesicos e Topographicos, Carta de Portugal 1:100000, #28, date of survey: 1884




Direcção Geral dos Trabalhos Geodésicos e Topográficos, Carta de Portugal 1:50000 1923 (sheet 52A) & 1930 (sheet 49C). IGOT

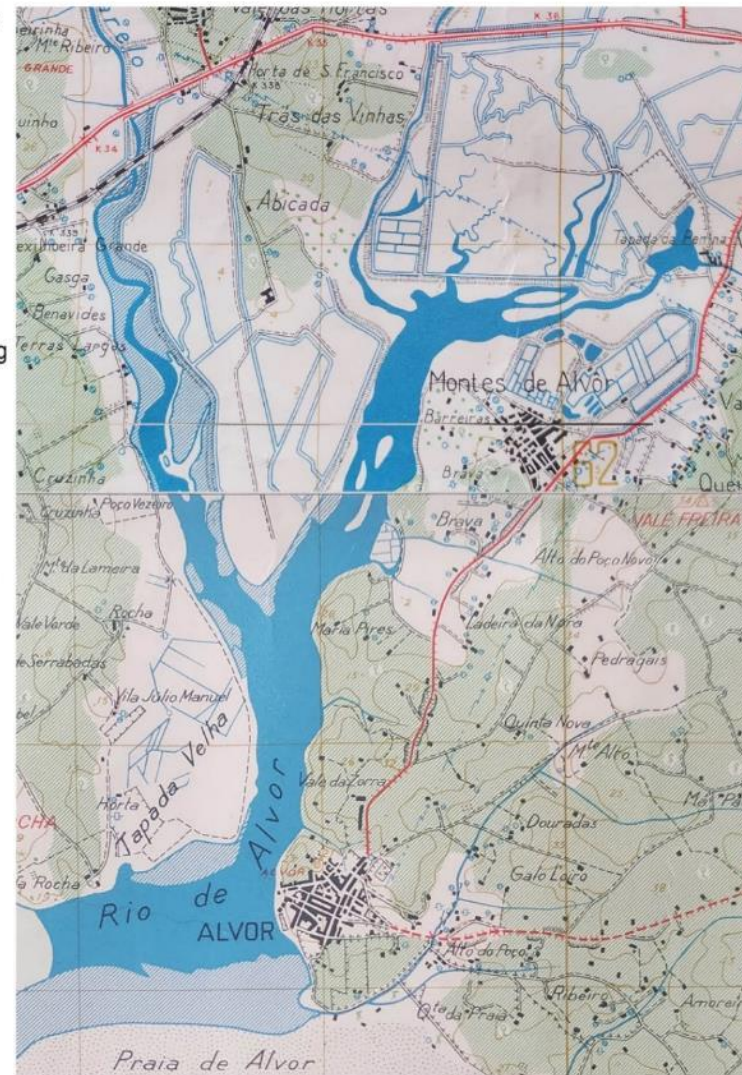
**Fig 2:** Comparison of 1884 and 1923 map



Carta Agrícola e Florestal scale 1:25000, 1951 (sheet 52A & sheet 49C). IGOT

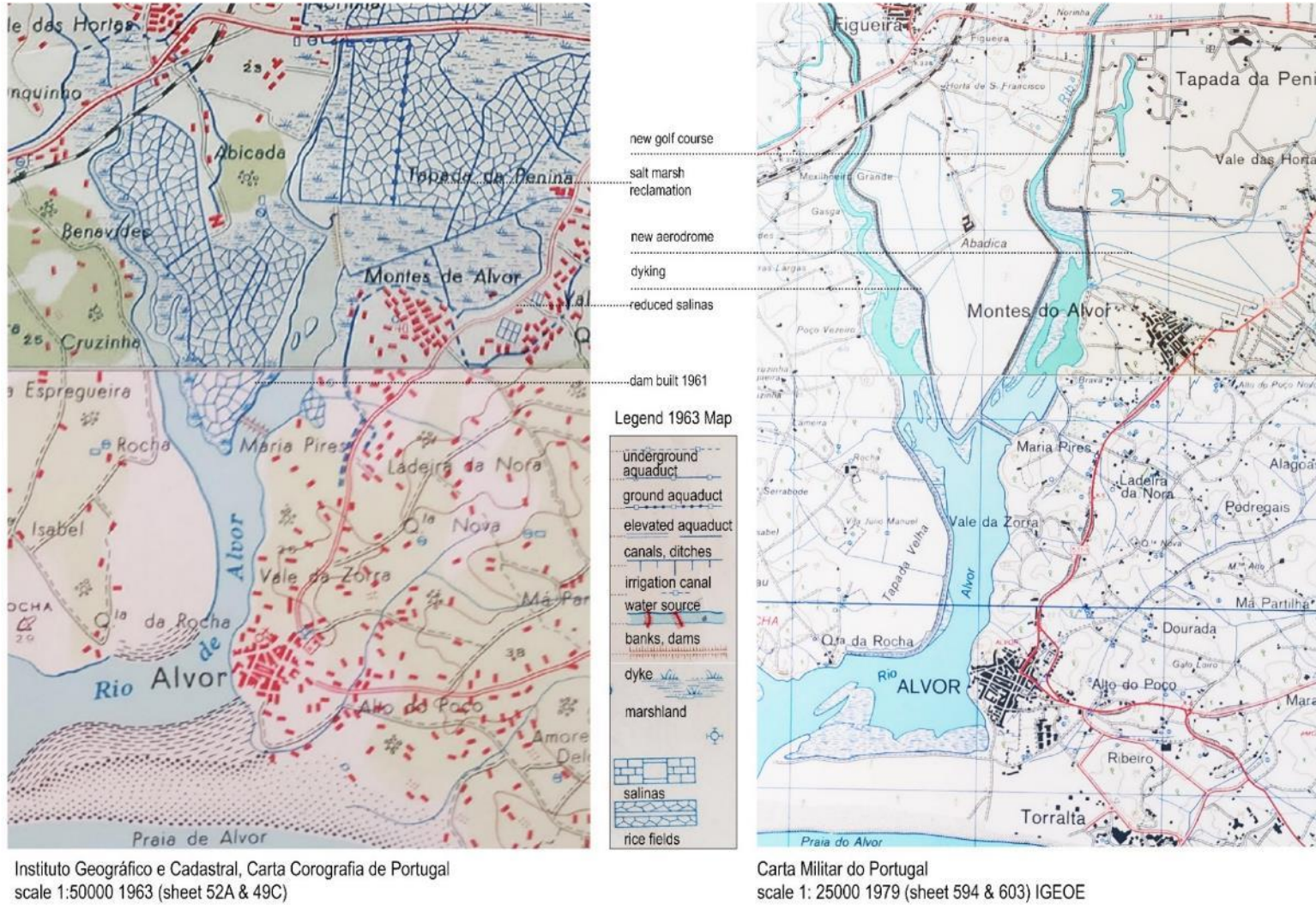
**Legend 1951 Map**

- Sp..... Saltmarsh
  - S..... Salina
  - Ct..... Lemons
  - Ax..... Peaches
  - Lg..... Oranges
  - Pr..... Pears
  - Ca..... Dry Orchards
  - Cr..... Irrigated Orchards
  - Am-F.. Almold + Fig Trees
  - Ht..... Hortas
  - MI-R..... Quince + Pom.
-  Salina
  -  Saltmarsh
  -  Dykes



Carta Militar do Portugal scale 1: 25000 1955 (sheets 594 & 603)

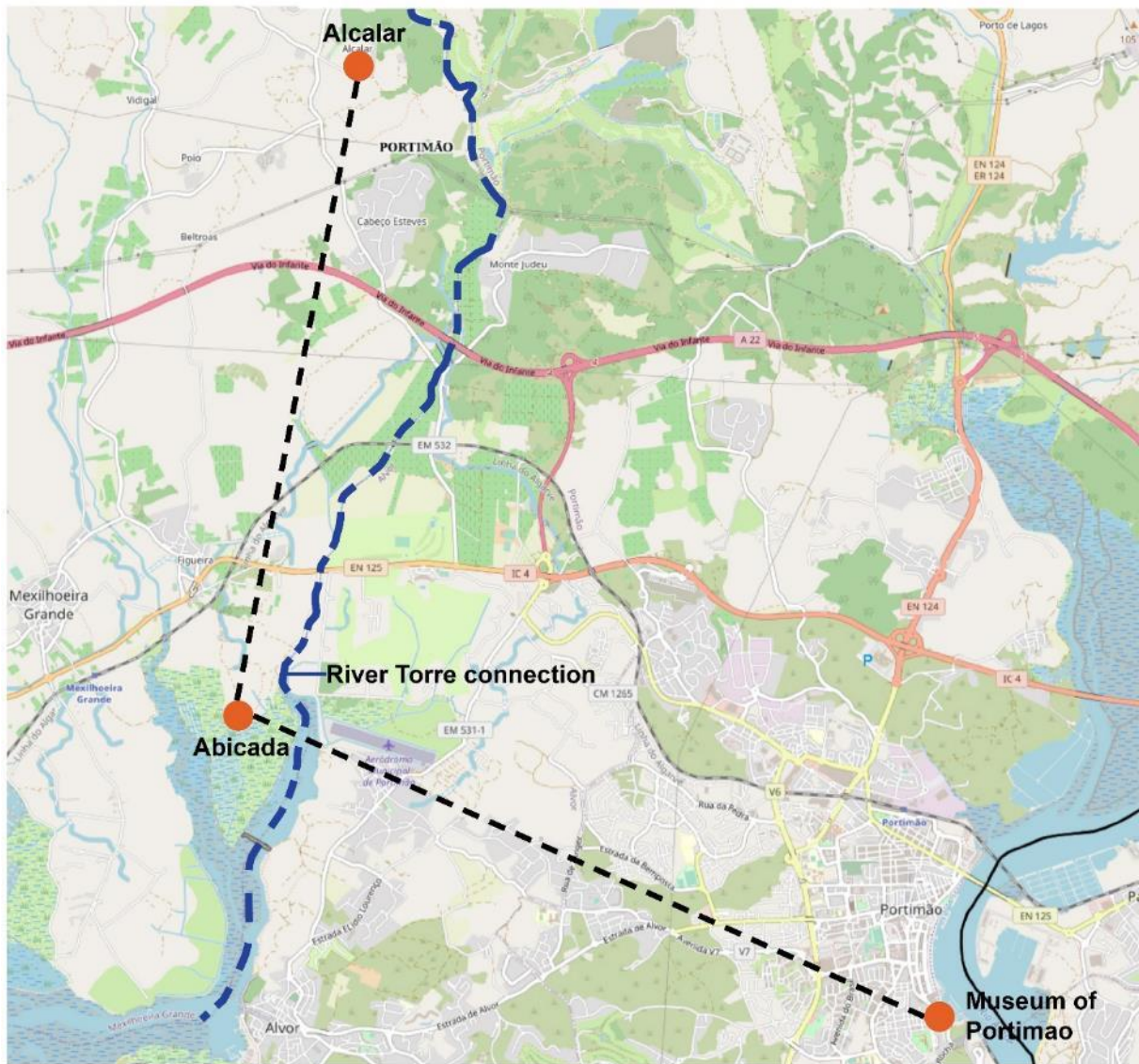
**Fig. 3:** Comparison of 1951 map with 1955



**Fig. 4:** Comparison of 1963 map with 1979



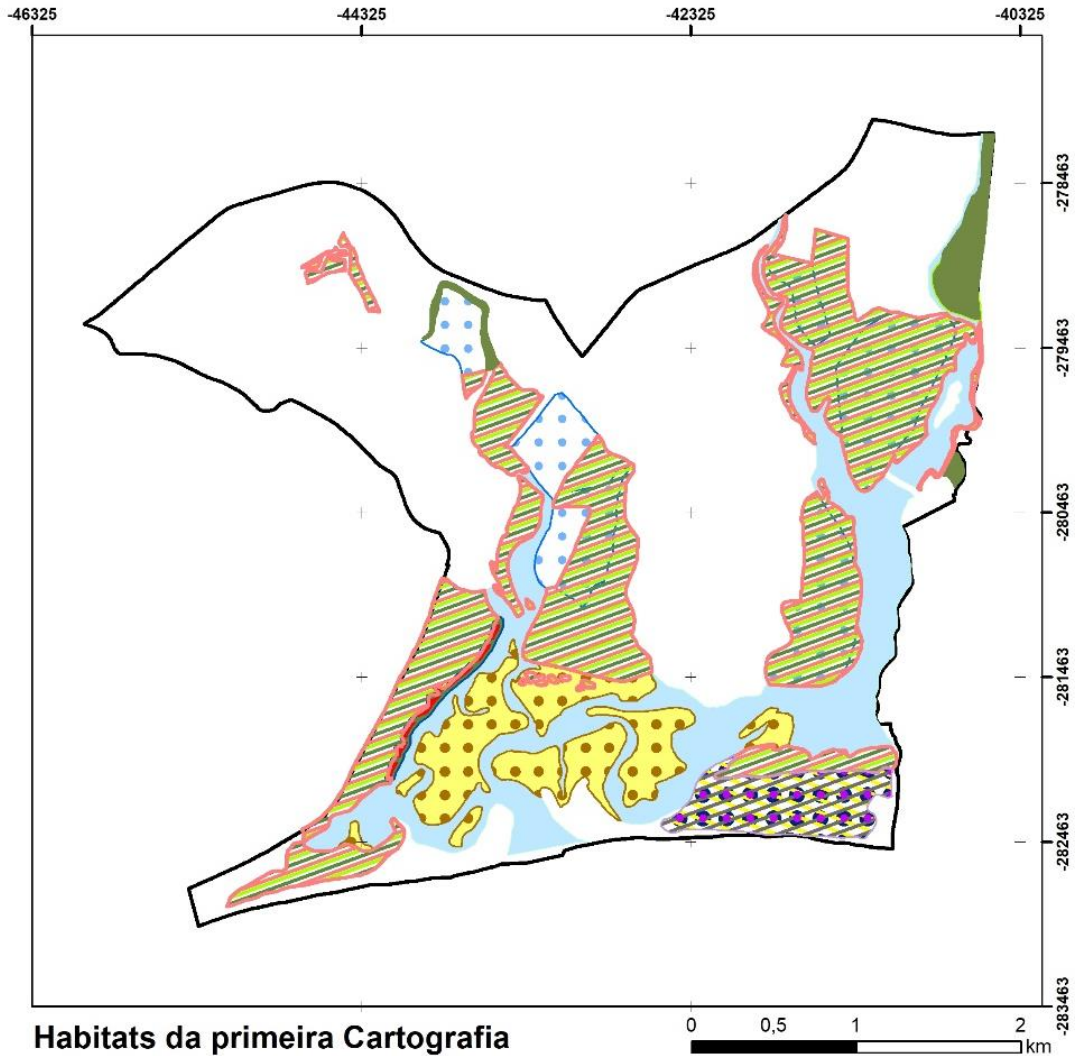
**Fig 5.** Aerial Map 1958 : source (IGOT) Centro de Estudios Geográficos



**Fig. 6:** Geographic relationship between the Museum of Portimão, Alcalar and Quinta da Abicada.

There is a 12 minute drive between the Abicada Roman ruins and Alcalar and a 17 minute drive between the museum of Portimão and Abicada for educational tours. There is the possibility of a restoration of the Torre River walkway the historical “power centre”.

# PTCON0058 Ria de Alvor



## Habitats da primeira Cartografia

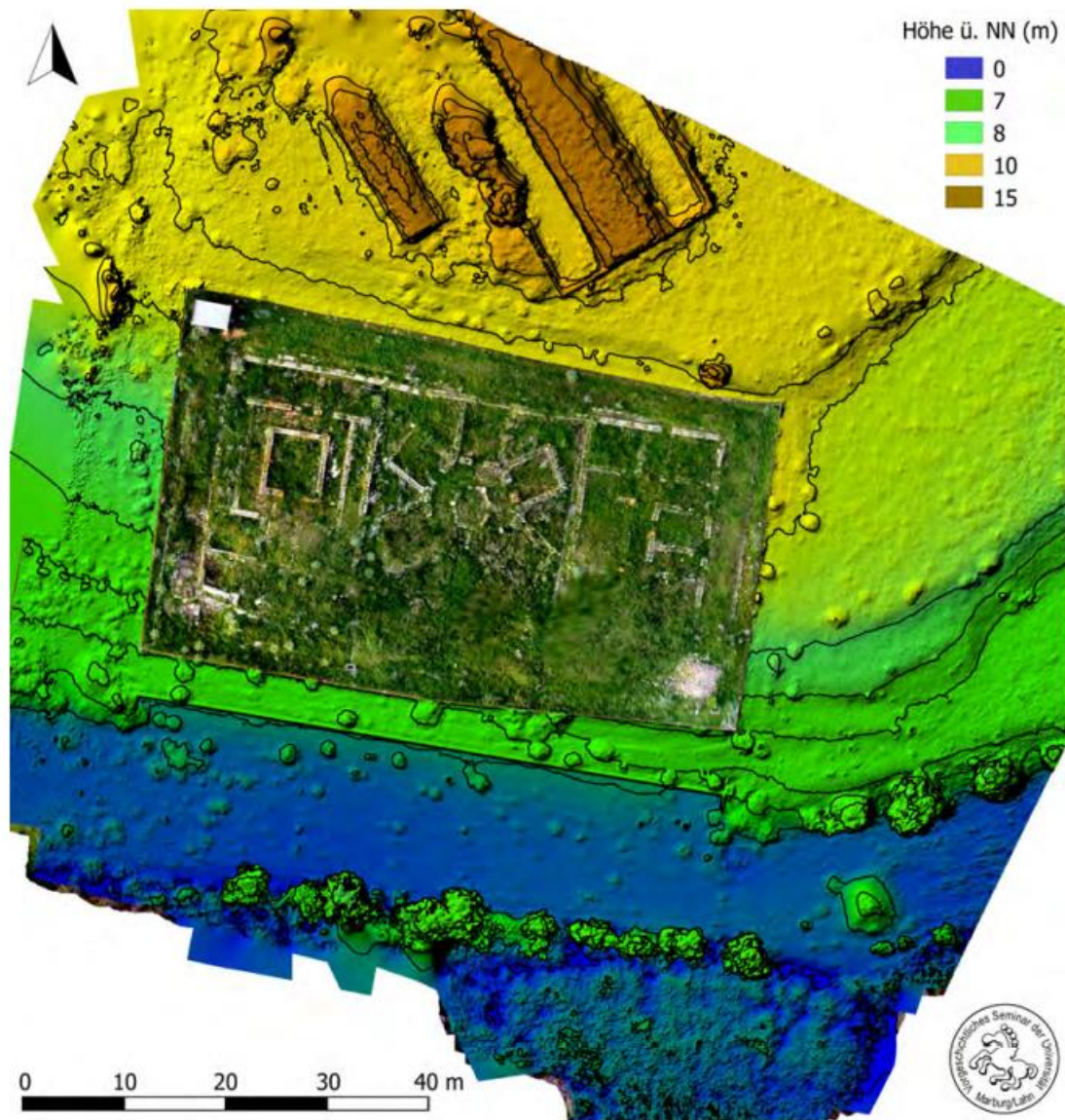
Fonte: ICNF, 2010

### Legenda

PTCON0058 Ria de Alvor	1410
1110	1420
1130	1430
1140	2120
1150	2130
1210	2230
1310	6420
1320	

Coordinate System: ETRS 1989 Portugal TM06  
 Projection: Transverse Mercator  
 Datum: ETRS 1989  
 False Easting: 0,0000  
 False Northing: 0,0000  
 Central Meridian: -8,1331  
 Scale Factor: 1,0000  
 Latitude Of Origin: 39,6683  
 Units: Meter

Fig. 7: Cartography for PTCON0058, ICNF 2010. Source: (ICNF, 2020, p. 18)



**Fig 8.** Villa de Abicada. Digital terrain model with the indication of the three artificial platforms (level of the pars rustica on the estuary bank, level of the urban pars and top of the hill (orthophotography: Simon Seyfried, graphic adaptation: Florian Hermann and Katja Bieber, University of of Marburg). IN (Brühlmann & Teichner, 2020).

## Appendix B: Supporting documents

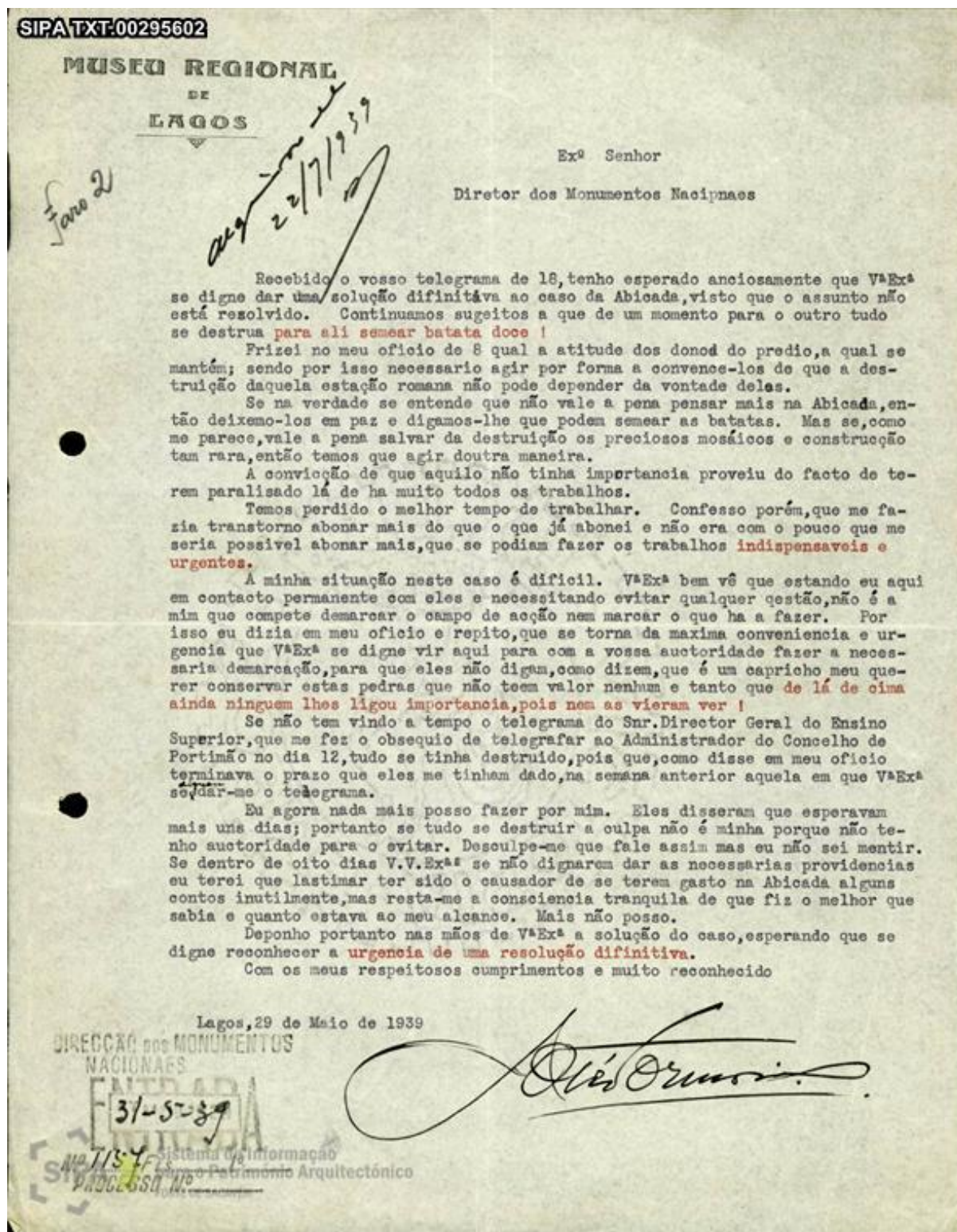


Fig. 8: J. Formisinho note to plead for intervention at Villa da Abicada, 1939, source: SIPA

APROVO  
13-9-76  
M. Amm

AUTO DE AVALIAÇÃO

Aos 27 dias do mês de Agosto do ano de 1976, a comissão constituída pelo chefe de secção do quadro permanente da Direcção-Geral dos Edifícios e Monumentos Nacionais António Angelo do Couto, pelo engenheiro civil de segunda classe da mesma Direcção-Geral Manuel Samina Vidigal Rodrigues, e pelo presidente da Comissão Permanente de Avaliação da Propriedade Rústica do concelho de Portimão regente florestal Alexandre Afonso Mendes Buiça, procedeu à avaliação, por inspecção directa, da parcela de terreno abaixo discriminada, com vista à sua possível aquisição para defesa, conservação e valorização da Estação Romana da Quinta da Abicada, classificada como Monumento Nacional pelos Decretos 30762 e 35817, respectivamente de 26/9/1940 e 20/8/1946.-----

- Parcela de terreno com as dimensões de 60x35 metros, área total de 2100 metros quadrados no meio da qual se encontram as ruínas da Estação Romana da Quinta da Abicada, situada na freguesia de Mexilhoeira Grande, concelho de Portimão; a propriedade donde esta parcela é destacada, de acordo com a planta anexa a este auto e que dele fica fazendo parte integrante, encontra-se inscrita na respectiva matriz predial rústica sob o artº 2549, e descrita na Conservatória do Registo Predial sob o nº 2093, a fls 52-V do Lº B-6, actualizado a fls 188 do Lº B-14; estava inscrita sob o nº 2357, a fls 125 do Lº G-4, e hoje actualizado pela inscrição nº 11848, a fls 193 do Lº G-11, a favor de Aquazul-Investimentos Turísticos e Hoteleiros S.A.R.L., que adquiriu esta propriedade por 20.000

SIPA

Instituto de Informação  
para o Património Arquitectónico

Manuel Samina Vidigal Rodrigues Alexandre Afonso Mendes Buiça

Fig. 9: Sale of the Roman ruins from Aquasul to the Portuguese State, 1976, source. SIPA



PRESIDENCIA DO CONSELHO DE MINISTROS  
SECRETARIA DE ESTADO DA CULTURA  
INSTITUTO PORTUGUES DO PATRIMÓNIO CULTURAL

GP	GEP	DSE	DSM
DSA	AJ	CDI	DEN
CCO	DEL	DES	DMN
UMC	DML	DMS	
Data 5.1.81			
O Director-Geral			

Exmo. Senhor  
Director-Geral dos Edifícios e  
Monumentos Nacionais  
Praça do Comércio

F.16 sul LISBOA

Sua referência  
4048

Sua comunicação de 27.8.80 a/ES. 7.2.4

Nossa referência 8721-17-7-80

Rua Occidental ao Campo Grande, 83. 1.º Piso  
(Edifício da Biblioteca Nacional)  
Telefone 73 28 21 — 1799 Lisboa Codex

ASSUNTO: Estação Romana da Abicada = Portimão

31 DEZ. 80-011750

Em referência aos ofícios acima indicados, tenho a honra de comunicar a V. Exa. que designei o Dr. José Luís Martins de Matos, para a tarefa de recuperação de mosaicos da estação Romana da Abicada, em condições a estabelecer entre essa Direcção-Geral e este Instituto.

Esclareço V. Exa. de que o referido técnico irá, a expensas desta Secretaria de Estado, fazer primeiramente uma inspecção ao local, e subsequente relatório.

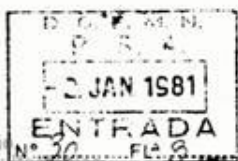
Com vista a um melhor encaminhamento do assunto, mais solicito de V. Exa. se digne informar-me sobre:

- Verbas disponíveis nessa Direcção-Geral para os trabalhos de recuperação;
- Situação da contratação de um guarda para a estação;
- Possibilidade de alargamento das zonas escavadas, verbas disponíveis e quando.

Com os melhores cumprimentos.

O VICE-PRESIDENTE,

(Justino Mendes de Almeida)



AC/CF  
Sistema de Informação  
para o Património Arquitectónico  
FORTE DE SACAVÉM

**Fig. 10:** Important dispatch sending a representative to the villa da Abicada, which mentions among other things, the “possibility of enlarging the zones of excavation”, 1980 (4 years after the purchase of the Roman villa land by the State. source: SIPA

Predomina a 3ª classe de aptidão ao regadio com 38,5% da área total a qual se verificou ao longo dos anos não ser totalmente adequada ao regadio nomeadamente muitos terrenos salgados. Computam-se em cerca de 206 ha os terrenos nestas circunstâncias e que constam na relação a seguir inserta que obviamente deverão sofrer estudo atento para confirmação das deficiências e para definitivamente, se for caso disso, serem retirados do Perímetro.

. Quinta da Rocha	74,5 Ha (*)
. Abicada	56,0 Ha
. Vale da Lama	23,0 Ha
. Espergueira	10,0 Ha
. Aeródromo Municipal	20,0 Ha
	<hr/> 206,0 Ha

De salientar que, devido à larga percentagem de terrenos halomórficos existentes no Perímetro, a obra de rega dos Campos de Alvôr foi considerada experimental precisamente para ensaio de recuperação de tais solos. Desconhece-se qualquer tentativa generalizada de recuperação, por dessalgamentos, dos solos em referência.

4. - O quadro:

ANOS	Nº DE PREDIOS	ÁREA BENEFIC.	ÁREA REGADA	ÁREA N. REGADA	%	
					A. REG.	A.N. REG.
1980	1 105	1 820	1 052	861	52,7	47,3
1981	1 105	1 828	1 052	776	57,6	42,4
1982	1 105	1 820	1 027	793	56,4	43,6
1983	1 155	1 669	509	1 154	30,5	69,5
1984	1 155	1 669	716	953	42,9	57,1

permite constatar que nos últimos cinco anos cerca de 52% do perímetro foi regado. Note-se que os números insertos no quadro foram influenciados pela seca que assolou recentemente o Algarve.

(\*) Parte já desafectada

Fig. 11: Document considering retiring 56 ha. of Abicada from the irrigated perimeter for agriculture, source: (APRH, 1986, p. 12)

## Appendix C: Tables

**Table 1:** *Quinta da Abicada Roman Villa (Portimão) 1986 Report of Works, abridged version from original report. Points numbered as in report (Varelo Gomes, 1986)*

Proposal for a Programme of Works for the Recovery of the Site (1986)		Current State (2021)
4.1	Restoration of mosaics. This work is, in our opinion, a priority given that the tesserae are fragile, beginning with those in the worst state.	Mosaics are stored in the Museum of Portimão and Lagos. Some restoration work was done but not completed due to a lack of funds
4.2	Cleaning and consolidation of all existing structures.	On-going requirement.
4.3	Issues of drainage on the site to be resolved, restricting standing water.	2010-2011 A drainage network was installed to prevent standing rainwater.
4.4	Further excavation of some areas to define structures, occupancy levels along with further precise topographic survey (plans, sections and elevations).	Teichner's team produced from 2000 produced precise topographic surveys, plans, sections and elevations included renderings.
4.5	A monographic study of the materials exhumed in the ancient excavations or found during the works.	The monograph of Abicada (Teichner, 2008) but does not include images of material found on earlier excavations such as those stored at the Museum of Lagos.
4.6	Construction of a shelter for the guard, painting of the gate and fixing the latch	There is no guard at present, fencing is deteriorating.
4.7	Signage, from the E.N 125 to the ruins.	No signage from the E.N 125
4.8	Publication of a small explanatory leaflet of the site, including information on the socioeconomic and cultural importance, reproductions of mosaics and some of the exhumed materials.	No easily available publications. Teichner's monograph includes several other Roman sites in the Algarve and is only available in German.
4.9	Instruct the guard on how to protect the site and how to conduct visitors on site.	No guard on site.
4.10	Demolition of clandestine buildings existing in the area for the protection of the site.	Buildings still exist and have been extended.
4.11	Look for a team that can offer continuous, scientific support along with a technician to solve any problems that arise.	Several experts and many technicians have worked on the site but no dedicated team.

4.12	Continue the excavations in the immediate area to find and study the important architectural and cultural pieces lacking in this configuration such as possible bath-houses, the salting factory, agricultural facilities, roads, the harbour, a necropolis, etc.	Permission was refused repeatedly by the owners (most recently in 2000) for further excavations.
4.13	Seek financing for these works (IPPC, Chamber Municipal de Portimão, Algarve Regional Tourism Commission, the company that owns Quinta da Abicada, etc.)	Financing is not forthcoming and is still an issue.

**Table 2:** Habitats identified in Quinta da Abicada. Adapted from SIC PTCON0058 cartography, source: (fig 12. ICNF, 2020)

Code	Description of Habitat	Subtypes	Dominant Species in the diagnosis
1110	Bancos de areia permanentemente cobertos por água do mar pouca profunda	---	<i>S/vegetação;</i> <i>Zostera noltii.</i>
1140	Lodaçais e areais a descoberto na maré baixa	---	<i>S/vegetação;</i> <i>Zostera noltii.</i>
1310	Vegetação pioneira de <i>Salicornia</i> e outras espécies anuais das zonas lodosas e arenosas	Pt1 Vegetação anual pioneira anual estival e outonal de plantas suculentas de sapal baixo ou médio	<i>Salicornia ramosissima;</i> <i>Suaeda albescens;</i> <i>Salicornia sp.</i>
1320	Prados de <i>Spartina</i> ( <i>Spartinion maritimae</i> )	---	<i>Spartina maritima;</i> <i>Sarcocornia perennis</i> subsp <i>perennis;</i> <i>Suaeda albescens;</i> <i>Salicornia sp.</i>
1410	Prados salgados mediterrânicos ( <i>Juncetalia maritimi</i> )	---	<i>Juncus acutus;</i> <i>Juncus maritimus;</i> <i>Spergularia media;</i> <i>Frankenia laevis;</i> <i>Inula crithmoides;</i> <i>Halimione portulacoides;</i> <i>Polygonum equisetiforme;</i> <i>Cotula coronopifolia.</i>

Code	Description of Habitat	Subtypes	Dominant Species in the diagnosis
1420	Matos halófilos mediterrânicos e termoatlânticos ( <i>Sarcocornietea fruticosi</i> )	Pt1/2/3 Sapal baixo de <i>Sarcocornia perennis</i> subsp. <i>perennis</i> , Sapal médio de <i>Sarcocornia fruticosa</i> ou de <i>Halimione portulacoides</i> e Sapal médio de <i>Sarcocornia perennis</i> subsp. <i>alpini</i>	<i>Sarcocornia pruinosa</i> ; <i>Halimione portulacoides</i> ; <i>Sarcocornia perennis</i> subsp. <i>perennis</i> ; <i>Sarcocornia perennis</i> subsp. <i>alpini</i> ; <i>Limonium vulgare</i> ; <i>Juncus acutus</i> .
		Pt4/5 Sapal alto de <i>Arthrocnemum macrostachyum</i> e Comunidades de <i>Suaeda vera</i>	<i>Arthrocnemum macrostachyum</i> ; <i>Suaeda vera</i> ; <i>Sarcocornia pruinosa</i> ; <i>Halimione portulacoides</i> ; <i>Cistanche phelypaea</i> ; <i>Inula crithmoides</i> ; <i>Suaeda albescens</i> ; <i>Mesembryanthemum nodiflorum</i> ; <i>Cotula coronopifolia</i> ; <i>Spergularia media</i> ; <i>Frankenia laevis</i> .
		Pt6 Sapal alto de <i>Limoniasstrum monopetalum</i>	<i>Limoniasstrum monopetalum</i> ; <i>Frankenia laevis</i> ; <i>Spergularia media</i> ; <i>Myriolimon ferulaceum</i> ; <i>Salsola vermiculata</i> ; <i>Suaeda vera</i> ; <i>Atriplex halimus</i> ; <i>Limonium lanceolatum</i> .
1430	Matos halonitrófilos ( <i>Pegano-Salsoletea</i> )	---	<i>Salsola vermiculata</i> ; <i>Atriplex halimus</i> ; <i>Frankenia laevis</i> ; <i>Arthrocnemum macrostachyum</i> ; <i>Spergularia marina</i> .
3140	Águas oligo-mesotróficas calcárias com vegetação bêntica de <i>Chara</i> spp.	Pt1 Águas doces, salobras ou salinas com comunidades de <i>Chara</i> sp.	<i>Chara</i> sp
5330	Matos termomediterrânicos pré-desérticos	Pt5 Carrascais, espargueirais e matagais afins basófilos	<i>Ceratonia siliqua</i> ; <i>Olea europaea</i> ; <i>Quercus coccifera</i> ; <i>Smilax aspera</i> ; <i>Rhamnus alaternus</i> ; <i>Chamaerops humilis</i> ; <i>Asparagus albus</i> .

Code	Description of Habitat	Subtypes	Dominant Species in the diagnosis
			<i>Genista algarviensis</i> ; <i>Cistus albidus</i> ; <i>Phlomis purpurea</i> ; <i>Cistus salviifolius</i> ; <i>Cistus monspeliensis</i> ; <i>Cistus crispus</i> ; <i>Rhamnus alaternus</i> ; <i>Thymus camphoratus</i> ; <i>Lavandula luisieri</i> ; <i>Lonicera etrusca</i> ; <i>Asphodelus ramosus</i> ; <i>Urginea maritima</i> .
		Pt7 Matos baixos calcícolas	
		Pt1 Bosques ou matagais	
92D0	Galerias e matos ribeirinhos meridionais ( <i>Nerio-Tamaricetea e Securinegion tinctoriae</i> )	dominados por <i>Tamarix africana</i> , <i>T. mascatensis</i> , <i>T. gallica</i> e/ou <i>Nerium oleander</i> , associados a águas doces	<i>Tamarix africana</i>

**Table 3:** % of irrigation allocated to golf courses v. agriculture in the Lagos and Portimão region. source: (*O Plano Regional de Ordenamento Do Território Do Algarve, 2004*)

**Tabela 40:** Áreas de Regadio Público (ha) – ZONA 1 (Aproveitamentos Hidroagrícolas de Alvor e do Mira (14%)(DGADR)

ÁREAS DE REGADIO PÚBLICO (ha) - ZONA 1								
Grupos de Culturas	Aljezur	Lagos	Monchique	Odemira	Portimão	Vila do Bispo	TOTAL	
Culturas Anuais	<i>Milho/Cereais Primavera</i>	87	16	0	14	11	0	128
	<i>Trigo/Cereais Inverno</i>	8	0	0	1	0	0	9
	<i>Milho/Forragens</i>	122	12	0	20	28	0	182
	<i>Girassol/Oleaginosas</i>	0	0	0	0	0	0	0
	<i>Tomate/Hortícolas Industriais</i>	0	0	0	0	0	0	0
	<i>Hortícolas Frescas*</i>	120	45	0	20	67	0	252
	<i>Arroz</i>	0	0	0	0	0	0	0
Culturas Permanentes	<i>Pastagens</i>	119	0	0	38	0	0	157
	<i>Pomares (excepto citrinos)</i>	3	28	0	1	43	0	75
	<i>Citrinos</i>	0	34	0	0	101	0	134
	<i>Oliveal</i>	0	0	0	0	0	0	0
	<i>Vinha</i>	0	14	0	0	20	0	34
	<i>Jardim/Flores/Viveiros</i>	10	1	0	2	8	0	20
<b>TOTAL /CONCELHO</b>	<b>469</b>	<b>149</b>	<b>0</b>	<b>94</b>	<b>278</b>	<b>0</b>	<b>991</b>	
<b>ÁREA DE REGADIO TOTAL (ha) - ZONA 1</b>	<b>991</b>							
<i>Campos de Golfe</i>	0	22	0	0	214	0	236	

\* Hortícolas Intensivas/Extensivas/Melão/Morangos/Batata (inclui hortícolas em estufa)

As áreas regadas no Aproveitamento Hidroagrícola de Alvor com Campos de Golfe instalados localizam-se nos concelhos de Lagos (22 ha) e Portimão (214 ha). As restantes áreas de campos de golfe existentes na Zona de Análise 1 regam com água proveniente de aquíferos subterrâneos ou de dessalinização e águas residuais.

**Table 4: Decline of Agriculture, Alvor, 1982- 2002**

**Evolução das culturas e áreas regadas no A.H. do Alvor (1982-2002)**

Culturas	Anos	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002		
		ha	ha	ha	ha	ha	ha	ha	ha	ha	ha	ha	ha	ha	ha	ha	ha	ha	ha	ha	ha	ha		
Arroz		59,00	-	-	47,00	38,00	38,00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Milho		87,00	-	85,00	115,00	120,00	107,00	120,00	150,00	145,00	142,00	140,00	54,00	71,00	33,00	97,00	88,00	78,66	45,42	37,97	37,97	37,97	37,97	
Milho forrageiro		50,00	-	29,00	35,00	36,00	15,00	-	-	-	-	-	-	-	-	-	31,00	38,00	-	22,93	22,93	36,03	36,03	
Tomate		4,00	-	10,00	12,00	14,00	13,00	-	-	-	-	-	-	-	-	1,00	-	0,37	0,25	0,95	0,95	0,95	0,95	0,95
Batata		8,00	-	6,00	10,00	11,00	5,00	-	-	-	-	-	-	-	-	1,00	-	0,88	0,64	0,41	0,41	0,41	0,41	0,41
Feijão		3,00	-	3,00	1,00	2,00	2,00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Couves		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,00	0,19	-	0,28	0,28	0,28	0,28	0,28
Horta		93,00	-	63,00	62,00	75,00	58,00	80,00	80,00	90,00	85,00	90,00	85,00	66,00	59,00	46,00	41,00	45,49	49,77	36,58	36,58	36,58	36,58	36,58
Melão-melancia		14,00	-	5,00	6,00	9,00	7,00	-	-	-	-	-	-	-	-	1,00	2,00	1,37	4,13	0,17	0,17	0,17	0,17	0,17
Pomar		435,00	413,00	412,00	415,00	432,00	413,00	405,00	405,00	410,00	408,00	405,00	402,00	325,00	268,00	261,00	246,00	254,69	249,17	241,82	232,00	232,00	232,00	232,00
Vinha		4,00	2,00	2,00	-	-	-	-	-	-	-	-	-	-	-	-	-	3,19	-	-	2,64	19,77	19,77	19,77
Ananás		2,00	2,00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prados e forragens		78,00	14,00	14,00	15,00	25,00	29,00	86,00	86,00	92,00	80,00	92,00	22,00	45,00	28,00	37,00	32,00	23,24	52,18	17,30	27,30	17,30	17,30	17,30
Pov.Flor./Relva		187,00	80,00	84,00	84,00	85,00	84,00	85,00	85,00	105,00	105,00	125,00	123,00	106,00	115,00	163,00	163,00	166,13	168,44	167,65	167,65	197,65	197,65	197,65
Outras		4,00	-	2,00	2,00	3,00	2,00	-	-	-	-	10,00	18,00	14,00	7,00	3,00	4,00	1,21	0,32	9,54	17,13	19,77	19,77	19,77
<b>Total regado</b>		<b>1.028</b>	<b>511</b>	<b>715</b>	<b>804</b>	<b>850</b>	<b>773</b>	<b>776</b>	<b>806</b>	<b>842</b>	<b>820</b>	<b>862</b>	<b>704</b>	<b>627</b>	<b>510</b>	<b>610</b>	<b>608</b>	<b>613</b>	<b>570</b>	<b>536</b>	<b>546</b>	<b>599</b>	<b>599</b>	<b>599</b>

Nos anos de 2000 e 2001 foram regados c/água própria (furos e poços) 82,32 ha, dentro da área beneficiada

## Appendix D: Interviews

### Entrevista com Rui Parreira, Direção Regional de Cultura do Algarve, dia 11 de Abril, 2021 (39.14 minutes)

**Laura Kearney:** [00:00:00] A área envolvente do local é propriedade privada, no entanto, presumo que os proprietários precisam dar acesso ao local. Como isso afeta a capacidade de considerar diferentes abordagens para o local ou trilhas para caminhar?

**Rui Parreira:** [00:00:34] Aquilo que a legislação aplicável prevê é que uma vez que o Estado comprou aquela propriedade apenas a parte que estava encravada numa outra grande propriedade e o proprietário da área envolvente, neste caso julgo que ainda é uma empresa que se chama Aquazul.

**Laura Kearney:** [00:00:59] Ah sim.

**Rui Parreira:** [00:01:01] É obrigado a dar serventia de acesso ao local, mas só acesso, seja se nós quisermos criar um espaço de estacionamento para as viaturas dos visitantes, temos que negociar com o proprietário da área envolvente adquirindo terreno o chegando a acordo com ele para que se possa instalar ali uma área reservada a parqueamento. A questão ali é que já houve uns anos atrás contactos com o proprietário que também estava interessada em fazer ali um núcleo de desenvolvimento turístico e nesse sentido candidatou se a uma “call” aberta pela Câmara Municipal de Portimão a que concorreram duas entidades a “Aquazul” e o proprietário da Quinta da Rocha, não me recordo o nome da empresa, a câmara acabou por considerar que o concorrente tem melhores condições para fazer o núcleo de desenvolvimento turístico, era a Quinta da Rocha. Portanto todo o estudo prévio era quase um tinha feito para aquela área, como a reabilitação da antiga Quinta da Abicada construção de uma área para alojamentos turísticos afastada e semi enterrada do lado nascente da península da Abicada. Tudo isso não teve continuidade, caiu por terra a ideia precisamente do proprietário era criar um espaço de estacionamento comum que servisse o empreendimento que eles queriam desenvolvimento, era um empreendimento turístico em espaço rural e partilhar isso com a tutela do património disponibilizando alguns lugares para os visitantes das ruínas. Havendo da nossa parte a intenção obviamente de reabilitar a área das ruínas. Portanto esse projeto não seguiu ficou em suspenso, ficou como ideia para o futuro. Mas neste momento não passa de uma ideia. Eu acho que para o seu trabalho era útil você entrar em contacto com os proprietários da Aquazul porque o proprietário, o filho do proprietário, e arquiteto e era ele que tinha desenvolvido o núcleo de desenvolvimento turístico. Todo esse estudo prévio ele tinha constituir uma equipa precisamente para avançar com isso. Eu acho que era útil para o seu trabalho académico.

**Laura Kearney:** [00:04:02] Fizemos trabalhos na zona o ano passado quando tive uma equipa no campo para fazer o cartografia dos habitats e visitámos Quinta da Rocha quando precisávamos de acesso e falávamos com a proprietária naquele tempo.

**Rui Parreira:** [00:04:33] A Quinta da Rocha?

**Laura Kearney:** [00:04:34] Sim, A Quinta da Rocha.

**Rui Parreira:** [00:04:35] Aquele mudou de proprietários. Já não é o mesmo que se apresentou no núcleo do desenvolvimento turístico.

**Laura Kearney:** [00:04:43] ah ok.

**Rui Parreira:** [00:04:44] Vários problemas de várias ilegalidades que a câmara acabou por suspender este processo. O que estou a sugerir, entrei em contacto com o proprietário da Quinta da Abicada, não é o mesmo, é outro.

**Laura Kearney:** [00:04:58] ok, eu vou avançar com isso. Qual você imagina que seria a experiência dos visitantes? Seria uma experiência muito diferente de uma visita a um museu que atrai entusiastas da história porque também, acho nesta zona, temos entusiastas da natureza também, porque, nós somos lá fora, com vistas muito bonitas..e uma coisa diferente.

**Rui Parreira:** [00:05:44] São aquilo que nós temos como intenção que é uma espécie de programa base muito de base e que valorização, reabilitação das ruínas não pode ser separada da compreensão da paisagem. Portanto as ruínas da Abicada serão sempre um ponto de atração para explicação da paisagem. Mais até do que explicação da paisagem eu costumo falar em explicação do território, e interpretação do território, porque a paisagem é aquilo que nós vemos atualmente, Não é? O que resulta da relação que nós humanos agora estabelecemos com o território e portanto é um conceito, você sabe não é? E vemos os paisagistas do século 17th, e portanto é, digamos que um território tal como ele hoje se apresenta. Nós queremos ir um pouco mais além, até porque eu trabalho, eu sou arqueólogo, Trabalho numa vertente da arqueologia que é arqueologia do território com uma componente de geo-arqueologia. Quando eu falo em geo-arqueologia eu falo da aplicação de métodos arqueológicos cruzando com as áreas da geologia do quaternário e da geografia.

**Rui Parreira:** [00:07:19] Os geógrafos têm uma percepção do território de cima para baixo. Os geólogos têm uma percepção de território de baixo para cima e aquilo que nós sabemos daquilo que tem sido feito em termos de geo-arqueologia junto à Abicada, e que há ali uma evolução das ribeiras que ladeiam, tinha a ribeira do Alvor chamemos-lhe assim, aquilo que ela é hoje, e aquilo em que a evolução do território resultou na paisagem de hoje. Não tem nada a ver com aquilo que era há seis mil anos atrás. Há seis mil anos atrás seis mil B.P 6500 B.P, há uma subida do nível das águas do mar e progressiva desde 10 mil. E ela estabiliza por volta de 6500 BP e atinge o seu máximo de transgressão. A partir daí há um processo inverso que é o da *colmetação desses vales inundados pela transgressão flandriana*. Portanto quando nós imaginamos o território e a organização do território há 6500 anos atrás nós temos que imaginar que a ribeira de Alvor são afinal dois grandes braços de mar que ladeiam a Península Abicada, que tem um nível de médio das águas do mar mais ou menos idêntico àquele que tem hoje, portanto, o nível de zero, a 6500 anos atrás, é mais ou menos, mais coisa menos coisa, *mutatis mutandis*, o mesmo nível de hoje só que aquilo que vemos hoje é que há todo um processo de comutação de enchimento dos vales que vão dar causa origem aos seus sapais que ladeiam a Península Abicada. A península Abicada, não é aquilo que é hoje, é no tempo dos romanos, também não. Ou seja, havia muito mais água, inclusivamente o melhor acesso a villa romana de Abicada, era através desse braço de mar, e por isso Abicada dispunha de um pequeno porto e uma vila marítima com uma pequena instalação portuária, pois não sabemos a extensão da propriedade do lado da Terra, não é, qualquer coisa que devido ao sobre pastoreio,

devido à sobre utilização do solo para fins agrícolas, a alteração da própria morfologia do solo através da criação de uma série de terraços foram aproveitados com um sistema de regadio para cultivo de arroz, sabemos que isso aconteceu nos anos 40s, 30s.

**Laura Kearney:** [00:10:28] Sim, esta parte eu preciso fazer mais pesquisas...

**Rui Parreira:** [00:10:35] A paisagem hoje não é a mesma da época dos romanos, ainda e muito menos da época pré-histórica em que a transgressão flandriana atingiu o seu máximo. Eu acho que era um dos objetivos de qualquer intervenção na Abicada, era muito interessante que fosse a instalação de um ponto de interpretação e de explicação desta evolução do território até ao que resulta na paisagem atual. Depois tem a outra componente que é a exploração da biodiversidade daquela zona, já estamos, digamos que um primeiro objetivo é a evolução do território até o presente. No segundo objetivo é a explicação da biodiversidade daquela zona, e um terceiro objetivo esse sim de caráter patrimonial e a compreensão das construções arruinadas da Abicada com a recriação virtual, porque temos elementos para isso, daquilo que seria aquele espaço, é uma visita direta às ruínas. Na visita até as ruínas, nós só podemos limitar-nos àquilo que é a área propriedade do Estado, na verdade, mas temos ali um conjunto muito interessante com três setores de funcionalmente distintos, ligados por uma galeria virada para o lado *da aranha* e dava acesso, não sei se você já viu algumas reconstituições ensaios de reconstituição disso, eu posso arranjar toda a bibliografia, há um pós-doutoramento do professor Félix Teichner, conhece o livro com certeza. Você lê alemão?

**Laura Kearney:** [00:12:34] Não

**Rui Parreira:** [00:12:37] Não, Ok. O parte que ele dedica à vila da Abicada não está traduzido e *portanto ele dá toda uma explicação daquilo que foi encontrado com base até nos levantamentos.*

**Laura Kearney:** [00:13:01] Eu li apenas seus relatórios...

**Rui Parreira:** [00:13:10] ok..dá para perceber que há ali um edifício uma casa senhorial uma *casa apalacada* na verdade, relativamente tardia no império romano século quarto através do estilo dos mosaicos também, que tem três partes tem uma parte central que é uma zona que tem um pequeno peristilo mini peristilo hexagonal à volta do qual se distribuem várias compartimentos que eram rodeados por uma zona ajardimar, depois tem no lado poente uma grande sala de recepção que funciona como sala de recepção e como *triclinium*, pretende como sala de refeições tem associadas mais conjunto de salas que servem precisamente para recepção por parte do proprietário, e depois ter uma zona de serviços no lado nascente com um corredor central e que funciona em dupla simetria. Portanto, se você dividir pelo corredor tem exatamente o mesmo de um lado e de outro, só que depois também se dividir ao meio tem a simetria espelhada, portanto funciona com uma dupla simetria é portanto vê se que há ali um trabalho por parte de um arquiteto do século um quarto da nossa era, que desenhou a Vila da Abicada, segundo modelos em voga no mundo humano, não é, é claro uma vila marítima porque depois tem do lado poente um outro corpo que avança sobre a via.

**Laura Kearney:** [00:14:58] Era uma das minhas perguntas, eu li idéias diferentes sobre este assunto

**Rui Parreira:** [00:15:10] é claramente a villa marítima...

**Laura Kearney:** [00:15:14] porque e importante por este ideia do ligacao entre os ... e tambem o sapal..

**Rui Parreira:** [00:15:32] ..hoje sapal, *no este meio nao era sapal*, era uma zona navegável. *Qual estava* mais a norte já tinha havido uma *acolhemetação* progressiva até as ribeiras já não eram inteiramente navegáveis até o seu extremo navegabilidade, já tinha havido ali algum assoreamento e acumulação de sedimentos no fundo do estuário que levaram portanto a zona navegável a recuar mais para perto da foz mas depois o grande impulso que temos notado que era ali na ribeira de Bensafrim em Lagos, onde o estudo foi mais intensivo do ponto de vista da arqueologia e que é sobretudo em época medieval na Idade Média, com a intensificação da atividade agrícola que leva a que essas terras acabem por compressão da água das chuvas e ser arrastadas para o fundo do estuário e acabar por *combatê lo*, há aí uma intensificação da agricultura, e há também uma intensificação do processo de assoreamento das ribeiras que leva pois já em época mais recente a formação dos sapais atuais, apesar deles, terem depois salinas etc. Até ali os salinas, uma atividade salineira, era muito significativa, às vezes da fotografia aérea os vestígios de salinas, e depois em época mais recente com o aproveitamento canalização dos canais de água doce e nos anos 40 depois os..

**Laura Kearney:** [00:17:31] É interessante para ver os padrões no google maps, os linhas das canais...

**Rui Parreira:** [00:17:36] Eu acho que esta explicação pode ser dada naquele sítio porque é um ponto de observação privilegiado da explicação do evolução do território, não deve limitar se apenas às ruínas romanas, mas deve ser um ponto de explicação do território, implicação da paisagem atual com toda a sua biodiversidade e explicação das ruínas que ali existem.

**Laura Kearney:** [00:18:04] Acho que isso é exatamente o que eu quero fazer. Estou a neste momento a colher todas as informações para fazer uma análise do site. Eu tenho mais perguntas para voce... mas o senhor ainda respondeu das muitas da minhas perguntas.

**Rui Parreira:** [00:18:41] Mas ela não pode pegar um microfone à frente porque eu falo muito.

**Laura Kearney:** [00:18:51] Os mosaicos, eles estão no momento no museu do Portimão, eu vi os imagens, sao incríveis, tao bonita... mas a ideia para eles é para ficar no Museu?

**Rui Parreira:** [00:19:09] Nao, a nossa ideia, neste momento as ruínas passaram da Administração Central do Estado central para a autarquia. Eu estou precisamente a trabalhar com as minhas colegas num programa base para musealização das ruínas. Portanto, a primeira questão é, o que fazer daquelas ruínas para os mosaicos voltarem para o sítio, eles devem voltar, é preciso criar no sítio condições de conservação.

**Rui Parreira:** [00:19:45] Podem *inser* criadas cobrindo a área das ruínas cobrindo através de uma um volume construído que proteja as ruínas mas que ao mesmo tempo permita que elas sejam visitadas. Nós temos vários exemplos...

**Laura Kearney:** [00:20:06] Visitei Milreu em Estoi..

**Rui Parreira:** [00:20:13] Estou não tem cobertura..

**Laura Kearney:** [00:20:16] É isso está a pensar, porque os ruínas e os mosaicos está lá fora...

**Rui Parreira:** [00:20:22] Sim. Você tem duas opções, ou instala os mosaicos e não cobre na ruína, não faz um telhado, um “shelter” que eu acho que é o que deve ser feito, se colocar os mosaicos no sítio sem “shelter”, você tem que cobrir os mosaicos com areia e nos ir mostrando aos bocadinhos, nunca terá a percepção da totalidade dos pavimentos decorados na época romana. A segunda opção é aquela que eu prefiro é criar um abrigo para que os mosaicos possam ser visíveis. Enfim tem que voltar a instalar, tem que recriar o pavimento, tem que pegar nas placas de mosaico e instalá las novamente no sítio. Há dois mosaicos, dois pavimentos já estão completamente tratados para poderem voltar para o sítio, mas tem que criar, tem que estabilizar e consolidar pavimentos para que eles possam receber as placas de mosaico retiradas do local. A questão da cobertura nos temos várias opções. Nós temos considerado, é o que cria um volume, que vai reproduzir exatamente aquilo que quer o volume da casa romana e tem exemplos disso, em vários pontos visitável da Itália nomeadamente na Sicília, uma grande vila romana como é chamada agora não me recordo.. é uma coisa famosa que tem uma das coberturas em metal e vidro que tem a grande desvantagem de um projeto dos anos 60, que tem a grande desvantagem de fazer um efeito de estufa, não é, tanto faz concentra todo o calor e acaba por ser prejudicial para as próprias ruínas, portanto, é um mau exemplo, uma bom exemplo, mas logo o exemplo em termos de conservação daquele que quer cobrir. Tem outros exemplos que é, criar uma cobertura, que com uma linguagem arquitetônica atual, mas que procure ir ao espaço e o encontro que era o volume construído..

**(...Pausa para tomar uma chamada do telemovel)** [00:23:48]

**Rui Parreira:** [00:29:41] Peço desculpa...vamos retomar quais eram as intenções para a cobertura da casa romana, é uma cobertura que pode recriar com maior rigor os volumes da casa romana e a forma dos telhados. Tem outra opção que é recriar apenas com uma linguagem contemporânea os volumes é um bom exemplo disso, no Castelo de São Jorge em Lisboa, um projeto do arquiteto João Luís Carrilho da Graça, tem também uma proposta muito interessante que está neste momento a ser construída para os banhos islâmicos do Loule, e que está em fase de obra, é um projeto do arquiteto Vitor Mestre. E tem propostas já construídas também muito interessantes do arquiteto Pedro Alarcão nas ruínas de Conímbriga em que ele procura recriar com uma linguagem contemporânea alguns volumes das casas romanas, e depois teve outra opção, uma terceira opção que é fazer um projeto totalmente livre da ruína que está a cobrir, enfim dando de algum modo uma sugestão daquilo que era a área da casa romana que tem na casa dos recursos em Conímbriga que é apenas um um “shelter” com muito poucos pontos de apoio que deixa ao centro uma zona com iluminação “zenital”, sobre o antigo jardim, o antigo peristilo da casa romana. Portanto, são tres formas de solucionar a problema, o que nos queremos fazer, é dizer o que queremos, criar uma proposição para a área dos ruínas, e deixar depois em concurso das ideias os architectos fazerem as seus propostas de base e escolher a melhor.

**Rui Parreira:** [00:32:21] A intenção é esta, criar uma abrigo para as ruínas, que permite a visita ao sítio, sem fazer passarelas em aéreas, sem ter a processão do como o espaço era sentido pelos romanos. Portanto, fazer as pessoas, passar sobre as ruínas sem a tocar, mais muito proximo do

nível dos pavimentos romanos, e criar na zona da antiga galleria, que unia as tres corpos do edificio, uma zona de estar, e explicações da paisagem, porque precimente aparte virada para afoz do Alvor. Faz todo a explicações de evolução da território.

**Rui Parreira:** [00:33:11] Não sei se este é o melhor sítio para iniciar um percurso do descoberta a península da Abicada, eu penso quer uma bom sítio para fazer chegar os pessoas, e partir de ali. Fazer descobrir a riqueza patrimonial, paisagistica, ambiental da península da Abicada e voltar novamente aquele ponte, ou seria sera apenas uma estação, numa percurso, que podia iniciar uma outro sítio, nomeadamente, no estação no Mexilhoeira Grande nao sei..

**Laura Kearney:** [00:33:56] quando fui a ver o península, eu estava a pensar sobre dos abordams, entradas e trilhos e coisas com isso, tive outra maneiras do...chegar, outra vias, este ponte, o ponte ligada do trilho (tapada) elevada e tambem o rio do Torre, acho tem uma possibilidade do fazer uma trilho ao longo do rio, uma lado e entrar do outra maneira..

**Rui Parreira:** [00:34:41] Agora, esta é a vossa área, eu sou criar uma ponte de interesse para explicar o paisagem e das ruínas, claro uma forma da integrar isso no concurso, mas ja consegue.

**Laura Kearney:** [00:35:56] tambem para mim, é interessante, quando fizemos o trabalho no campo, este zona estava pior para os habitats, por causa de gado

**Rui Parreira:** [00:35:26] sobrepastoreio...

**Laura Kearney:** [00:35:56] acho que, no futuro é uma proposta para reabilitar e renovar o sítio, para ficar uma pocadinha mais saudevel, mais melhor.. mais acho este minha trabalha para fazer.. eu acho que o senhor respondeu todas as minhas perguntas..falou do tudo...sou uma pergunta pequena..como como você sabe a altura do prédio romano?

**Rui Parreira:** [00:36:19] veja o que o tese proponha on tese dele, eu manda isso, eu tenho uma pergunta, que precisa do documentacao para seu trabalha? Porque eu tenho praticamente os levantamentos tudo digilizados em parte vectorial

**Laura Kearney:** [00:36:49] Eu gostaria de tudo, acho é difícil para você enviar..

**Rui Parreira:** [00:36:57] vou tentar a mandar..temos seu contacto, eu tenho a seu contacto do email, ok..vaos fazer assim..eu vou vir o que tenho e vou mandar o que tenho e ten aceitar o fonte..o origin.. eu vou enviar o que eu tenho por email e voce vi o que serve e vamos mantar em contacto, tenho interesse na evolução de vossa trabalha e poder acompanhar isso, contacto os colegas do Portimão tambem, esta proxima,..

**Laura Kearney:** [00:38:49] Eu mandei uma email ontem.. para o arqueólogo Vera Freitas, vamos ver. Muito, muito obrigada para vossa tempo.

**Rui Parreira:** [00:39:06] e a vossa interesse tambem.

## **Entrevista com Vera Teixeira de Freitas, Arqueóloga do Museu do Portimão sobre Quinta da Abicada, 27-04-2021, (34 minutos)**

**Vera Teixeira de Freitas:** [00:00:07] Não sei se quer começar por falar sobre o seu projeto e depois eu posso falar como é que está a situação da Abicada atualmente e quais são as intenções da autarquia relativamente ao sítio. Eu vi o seu e-mail, percebi qual é o seu objetivo, da sua tese e o que é que pretende fazer. Está muito de encontro àquilo que é a nossa ideia relativamente à Abicada, que é não considerá-la apenas como um sítio arqueológico, mas a tal paisagem cultural de que fala, acho que é um conceito que neste caso se aplica muito bem. Realmente, o sítio que não pode ser visto separado do seu enquadramento, do sítio onde se encontra. Realmente, tem um potencial muito grande nessas duas vertentes: tanto patrimonial, como de património natural.

**Laura Kearney:** [00:01:06] Exatamente.

**Vera Teixeira de Freitas:** [00:01:07] A Laura está ligada a algum projeto de investigação ou está a fazer a tese de mestrado à parte de um projeto maior? Eu não percebi isso..

**Laura Kearney:** [00:01:23] Não, é só uma tese para o meu mestrado. Quando eu falei com o Dr. Rui Parreira, ele disse que seria uma boa ideia falar com vocês por causa das ruínas. No ano passado, eu fiz parte de uma equipa para fazer o estudo dos habitats para a Rede Natura 2000. Este trabalho é um pouco separado, estou a fazer uma mistura entre as duas coisas: o estudo dos habitats que foi feito e também a paisagem cultural. Fiz um relatório destes estudos no ano passado, mas isto é separado da minha tese. Estou a usar os dados, a informação.

**Vera Teixeira de Freitas:** [00:02:38] A sua tese vai-se centrar mais ao nível desta questão do que é necessário para conservar esta paisagem cultural.

**Laura Kearney:** [00:02:49] É isso.

**Vera Teixeira de Freitas:** [00:02:51] E diga-me uma coisa, vai propor alguma intervenção direta nas ruínas? Se é só ao nível da paisagem integrada ou se relativamente às ruínas já propõe alguma coisa também, ao nível do património edificado que se conserva no local.

**Laura Kearney:** [00:03:09] Estou a colher a informação agora. Quando eu falei com o Dr. Parreira, ele falou muito de um tipo de abrigo, “uma cobertura, um volume construído que protegesse as ruínas mas que ao mesmo tempo permita que elas sejam visitadas”. Só estou a pensar neste assunto, a primeira coisa para mim, é a maneira de partilhar a história da paisagem e das pessoas e fazer trilhos, e pensar como as pessoas podem aceder ao local, os acessos ao sítio e o estacionamento, coisas de arquitetura paisagista. O Dr. Parreira falou de um abrigo, um tipo de “shelter”, construído

para proteger as ruínas. E é preciso uma coisa destas antes de os mosaicos poderem voltar para o local.

**Vera Teixeira de Freitas:** [00:05:08] Sim..

**Laura Kearney:** [00:05:08] Vocês tem outras condições que precisariam ser atendidas antes que o sítio pudesse ser aberto ao público?

**Vera Teixeira de Freitas:** [00:05:19] Deixe-me só voltar um bocadinho atrás... A Abicada é um monumento nacional, como sabe, desde 1930, praticamente. Muito recentemente, há cerca de um mês atrás, no ano passado, saiu uma lei - uma transferência de competências. (Se não entender o que estou a dizer, o sentido, diga-me) Há uma lei agora que foi aprovada que é a transferência de competências ao nível da cultura para os municípios, então, a administração central - o governo - passou a competência de administração de determinados sítios classificados para as autarquias, e a Abicada foi um destes casos. Por isso, neste momento, a Abicada terá uma gestão partilhada entre a autarquia, da qual o museu faz parte - o Museu de Portimão - e a Direção-Geral da Cultura e a Direção Geral do Património Cultural. Nesse sentido, porque até então a autarquia não tinha poder para intervir diretamente no sítio, porque estava sob a competência da administração central, só agora com esta alteração da lei é que nós temos a possibilidade de intervir também no sítio. O que quer dizer também que tem que partilhar os custos dessa intervenção também serão parcialmente suportados pela autarquia. E é nesse sentido que agora, estamos a desenvolver um anteprojecto, estamos a lançar as bases para um concurso de ideias, basicamente estamos a fazer um caderno de encargos com tudo aquilo que pretendemos que o sítio disponha, para que depois seja então feito um anteprojecto que nos permita fazer candidaturas a programas de fundos comunitários, porque é uma obra muito dispendiosa. E eu estou só a falar já esquecendo a questão da paisagem cultural, só a própria intervenção no sítio arqueológico tem muitas componentes e vai financeiramente ter um custo muito grande, porque como sabe os mosaicos foram retirados dos compartimentos da villa, alguns deles já foram tratados e encontram-se em condições de serem repostos no local, mas ainda falta completar esse tratamento, que é algo que financeiramente é muito custoso.

**Vera Teixeira de Freitas:** [00:08:03] Depois há a questão de determinados pontos que nós consideramos essenciais para que o sítio seja visitável, que é a questão da cobertura como o Dr. Parreira já tinha dito, e o que se tinha pensado era uma cobertura que não só protegesse as ruínas e os mosaicos mas também permitisse aos visitantes visualizarem o espaço em segurança e que, de certa maneira, essa própria cobertura, a nossa intenção era que desse uma ideia já de desenvolvimento da própria estrutura que – não estou a dizer uma reconstrução da casa, de como nós julgamos que seria a villa, mas que dê já algumas indicações a quem necessita, de como seria a própria estrutura no seu estado total de conservação. Depois temos a questão do estacionamento. A propriedade do Estado – não sei se já conhece o sítio - é apenas aquela zona que está em volta das ruínas.

**Laura Kearney:** [00:09:09] Sim

**Vera Teixeira de Freitas:** [00:09:09] Nós só temos aquela propriedade que é propriedade do Estado, tudo em volta é propriedade privada duma empresa chamada Aquazul. Agora, nós para pensarmos num sítio visitável não vamos permitir que os carros estacionem ao pé das ruínas, o estacionamento terá de ser feito antes num espaço antes das ruínas, provavelmente junto daquelas habitações que estão em ruínas, que são aquelas casas da quinta, que têm cisterna, têm ainda muita coisa ainda conservada ali naquela zona mas o estacionamento teria de ser numa zona aí próxima.

**Laura Kearney:** [00:09:51] Mas esta zona é completamente privada agora...

**Vera Teixeira de Freitas:** [00:09:53] Exatamente, a questão é essa, nós, para concretizarmos as nossas intenções, vamos ter que adquirir terreno, que permita o estacionamento, um centro interpretativo e um espaço de acolhimento. E depois há a questão do acesso, porque aquele acesso é um acesso privado, e os proprietários são obrigados a dar-nos o que se chama “serventia”, quer dizer, a passagem: são obrigados a deixar passar as pessoas até ao terreno das ruínas da Abicada.

**Laura Kearney:** [00:10:30] Eles podem decidir, então, onde fica esse acesso?

**Vera Teixeira de Freitas:** [00:10:37] O acesso já está feito, o acesso é aquela estrada que já existe, só que não está em condições, nós sabemos que a estrada está em péssimas condições. Mas a ideia não era pôr os carros ao pé das ruínas, era deixar os carros muito antes e fazer todo o resto como passeio pedestre. Mas os acessos têm de ser arrançados, e isto é outra coisa que o proprietário não é obrigado a fazer, porque ele já dá o acesso, ele já permite que as pessoas e os carros entrem, mas não é obrigado a fazer a conservação nem a manutenção do acesso, e isto é mais um encargo para o projeto. Agora, a nossa ideia, a nossa ideia perfeita, basicamente aquilo que nós gostaríamos, era - tal como o Laura refere - adquirir uma grande parte do terreno da quinta e tornar toda essa zona realmente como zona de parque natural, com a vertente patrimonial também, mas com toda a vertente ambiental com percursos, com trilhos, com um espaço para as pessoas poderem fazer merendas. Era toda aquela zona da Abicada, como refere, e até um bocadinho as próprias infraestruturas que ainda se conservam da Quinta, porque – não sei se conhece aquelas ruínas – tem a cisterna, o tanque, a nora, tem muitas componentes ligadas à atividade agrícola que se desenvolveu nesta quinta, que estão conservadas, e seria também interessante, recuperar e disponibilizar a visita ao público que permita usufruir de todo esse espaço.

**Laura Kearney:** [00:12:43] Sabe a idade destes prédios?

**Vera Teixeira de Freitas:** [00:12:58] Penso que serão de à volta de 1930, 1940..

**Laura Kearney:** [00:13:04] Acho que eu vi nos mapas antigos...

**Vera Teixeira de Freitas:** [00:13:10] Mas, efetivamente, não se conservam ainda tantas instalações agrícolas como aquelas, todas juntas e tão bem conservadas não é muito frequente.

**Laura Kearney:** [00:13:28] Também como os canais elevados para a rega... Vera Teixeira de Freitas: [00:13:39] Até fornos tem lá ainda, tem o forno de cal, tem um forno de cerâmica.. aquilo está muito bem conservado.

**Laura Kearney:** [00:13:48] Eu vi os desenhos do Aquazul para fazer um empreendimento turístico a nesta zona.

**Vera Teixeira de Freitas:** [00:13:57] Viu no site deles...

**Laura Kearney:** [00:13:59] É um grande empreendimento e não incorporam estas ruínas, armazéns e vestígios da Quinta antiga...

**Vera Teixeira de Freitas:** [00:14:07] Não... neste momento não há nenhum projeto a ser licenciado para a Quinta da Abicada, porque há cerca de dez anos atrás, havia algo aqui em Portugal que eram os Núcleos de Desenvolvimento Territorial (NDTs) e cada região tinha capacidade de ter um número fixo de NDTs. Aqui em Portimão concorreram a Quinta da Rocha e a Quinta da Abicada, mas a Quinta da Abicada não teve depois continuidade, nem o da Quinta da Rocha. Agora há um projeto que está em fase de licenciamento mas que também ainda não está concluído, mas implica só a construção das habitações já existentes, não implica novas construções.

Na Abicada, não houve continuidade do projeto, não sabemos exatamente qual é a intenção da Aquazul para o local, porque eles estão muito condicionados ao nível de possibilidades de construção no local por causa de toda a questão paisagística, natural e de ambiente que se coloca ali, e não só da questão do património também. Por isso, talvez haja - a minha esperança é que haja - uma abertura da parte da Aquazul, para facilitar a concretização do nosso projeto. Mas também estamos ainda numa fase muito inicial, a transferência de competências foi assinada há duas semanas. Por isso, só agora é que nós começámos. Eu já tinha as coisas mais ou menos preparadas, mas só agora é que tenho mesmo indicações para avançar com este tal anteprojecto, o lançamento do concurso do anteprojecto para a valorização da Abicada. Mas sabemos à partida que vai ter que incluir aquisição de terrenos e os programas de financiamento europeu alguns deles permitem que inclua a aquisição de terrenos no financiamento. Não pode é ser um valor, tem uma percentagem do valor total da candidatura que só pode ser usada para aquisição, para não haver financiamentos em que 70% do financiamento é dado para adquirir o terreno. Eles não pretendem isso, pretendem que só apenas uma pequena fatia do financiamento seja usada na aquisição de terrenos. Nós estamos agora a ver que há várias coisas aqui que estão em jogo, que nós temos como é que vamos funcionar. Primeiro temos que saber exatamente, ter uma estimativa global do custo do projeto, para saber exatamente qual é a percentagem que podemos alocar à aquisição de terrenos e, tendo em conta esse valor, tentar perceber, por parte também da Aquazul, qual é a sensibilidade deles para permitir a venda.

**Laura Kearney:** [00:17:12] Espero que sim....

**Vera Teixeira de Freitas:** [00:17:14] Outra questão legal que se coloca é que aquilo é uma propriedade única, exceptuando aquele pequeno troço da Abicada que está encajado na propriedade. Em termos de, o que se chama “desparcelamento” - criar uma parcela mais pequena dentro de uma propriedade grande - há determinadas regras legais que têm de se cumprir para os terrenos agrícolas, e que implica que esses desparcelamentos sejam feitos, eu penso que há uma área mínima de 3 hectares ou quatro hectares e só se pode dividir em terrenos com estas dimensões. Por isso, nós estamos agora a tentar jogar um bocadinho com estas coisas e ver o que é possível nós fazermos, mas ainda estamos na fase inicial. Nós sabemos o que é que gostaríamos de fazer, que era comprar tudo...

**Laura Kearney:** [00:18:21] É verdade...

**Vera Teixeira de Freitas:** [00:18:24] Entenda, eu não estou a falar em nome do executivo da autarquia, eu estou a falar em meu nome pessoal enquanto técnica, porque o executivo se calhar terá outra perspectiva diferente. Enquanto técnica, aqui no museu, o que nós consideramos é que realmente seria vantajoso haver a aquisição de uma grande parte do terreno que permitisse a reconstrução das tais ruínas e de todos aqueles equipamentos agrícolas. E que houvesse um projeto que fosse não só a componente patrimonial, mas também a componente das ocupações antigas do terreno enquanto quinta agrícola, e também da paisagem em termos de paisagem natural, e estamos a ver que condições é que temos, legais e financeiras para atingir esses objetivos. Só que eu ainda não lhe consigo dar dados muito concretos acerca do que é que realmente vai ser feito lá. Mas sabemos que há condições mínimas que é a cobertura, os acessos, o estacionamento e um centro de acolhimento. Agora em que condições é que isto será feito... ainda estamos num ponto muito inicial para eu conseguir dar uma resposta.

**Laura Kearney:** [00:19:32] É mais um componente para mim, quando fizemos o estudo dos habitats, este lugar teve a pior nota para os habitats, por causa do sobrepastoreio, tem muito gado nesta zona e o sapal é muito mau neste momento, mas é uma coisa fácil de reverter que eu vou tentar incluir na minha proposta porque aquele é um sítio incrível mas onde já se perderam muitas espécies de plantas por causa do gado.

Entre [00:21:49] e [00:24:11] uma discussão sobre o partilha de arquivos e documentos para a bibliografia..

**Laura Kearney:** [00:24:09] Eu li o vosso trabalho do Sítio da Cruzinha no contexto da ocupação romana. Existem outros locais potenciais em Portimão que poderiam ser associados a este local? Há outros sítios que tenham coisas para ver para melhor planear uma rota?

**Vera Teixeira de Freitas:** [00:25:00] A questão é que no caso da intervenção da Cruzinha, eu fiz uma intervenção na zona que foi afetada por uma estrada municipal. O sítio encontra-se dentro da propriedade da Quinta da Rocha. O sítio desenvolve-se todo para a propriedade e na própria Quinta da Rocha existem outros sítios da época romana. Agora coloca-se é uma questão na contemporaneidade, nós não temos a certeza de que são contemporâneos da Abicada, de que estiveram em funcionamento ao mesmo tempo, porque a ocupação romana é muito prolongada, como sabe, é do século I a.C. até ao século VI, por isso temos aqui uma grande linha temporal. E ao nível também da própria ocupação da Abicada, há umas dúvidas relativamente à cronologia. Temos umas balizas mais ou menos, mas não estão muito afinadas e isso coloca-nos alguns problemas depois em fazer uma relação com os outros sítios de ocupação romana que temos conhecidos no concelho. Mas temos noutros sítios, temos outras *villas*.. mas está a referir-se apenas naquela zona de Alvor e da Mexilhoeira ou na zona de Portimão também?

**Laura Kearney:** [00:26:19] Quando eu pensei nos trilhos e rotas, era só para as pessoas poderem visitar a pé outros sítios perto, mas é complicado quando as ruínas estão de propriedades privadas.

**Vera Teixeira de Freitas:** [00:26:46] É que a maior parte dos sítios estão dentro de propriedades privadas. Os sítios estão referenciados, estão salvaguardados, mas para permitir as tais rotas e trilhos seria muito complicado com a questão depois de gerir com os privados.

**Laura Kearney:** [00:26:57] Os mosaicos estão expostos no museu?

**Vera Teixeira de Freitas:** [00:27:08] Não, já estiveram numa exposição temporária, os mosaicos das salas que já foram alvo de tratamento de conservação e restauro já foram expostos numa exposição temporária aqui no Museu de Portimão. Neste momento, encontram-se em reserva guardados aqui no museu. E, como disse, há parte deles que ainda precisa de continuar esse trabalho de tratamento e conservação que ainda não está concluído.

**Laura Kearney:** [00:27:37] Quanto mais tempo precisam?

**Vera Teixeira de Freitas:** [00:27:40] Não é uma questão de tempo...

**Laura Kearney:** [00:27:42] É uma questão das finanças...

**Vera Teixeira de Freitas:** [00:27:49] Não é o tempo que nos preocupa...

**Laura Kearney:** [00:27:54] Compreendo. Eu li sobre a existência de um cais em frente das ruínas.. resta alguma coisa para mostrar às pessoas? Existem alguns vestígios que se possam ver no sítio?

**Vera Teixeira de Freitas:** [00:28:17] Não, não há nada visível.

**Laura Kearney:** [00:28:18] Para mostrar aos visitantes isso será apenas uma referência escrita, uma coisa interpretativa?

**Vera Teixeira de Freitas:** [00:28:25] É uma referência antiga, e uma referência escrita faz todo o sentido que tenha, não temos grandes dúvidas que houvesse essa estrutura portuária, faz todo o sentido que haja um acesso ali na ria diretamente à villa, mas em termos de vestígios que possamos conservar e mostrar neste momento, não. O sítio foi escavado em 1930, ainda numa altura em que a investigação arqueológica e os métodos de escavação não eram tão rigorosos como atualmente. Por isso, nós temos muitas dúvidas acerca dos contextos arqueológicos que foram escavados, tanto ao nível da cronologia, como ao nível da função. Há também referência a umas estruturas tipo tanques, que surgiram nas imediações das ruínas da villa mas que na altura, na década de 30, foram destruídas pelo proprietário da quinta. Uma coisa era só aquele quadrado da villa, outra coisa era se começassem a aparecer muitos sítios à volta... E, pelos vistos, na altura, o senhor destruiu esses tanques e nós temos apenas uma fotografia antiga mas nem sequer dá para perceber muito bem se são tanques de salga de peixe, se são tanques relacionados com um lagar de vinho ou de azeite, por isso a sua função também é muito difusa. Temos a certeza que estas estruturas, estas *villas* romanas não tinham só aquela parte habitacional, tinham também toda a outra parte que era a “parte rústica”, na qual se desenvolviam todas as atividades ligadas à atividade agrícola: os lagares, os armazéns, os currais. Todas essas evidências nós não sabemos onde é que estão, mas sabemos que estão por ali. Por isso, toda aquela zona em termos arqueológicos é sensível, não é só aquele pedacinho das ruínas, temos de considerar aquela península toda como um todo sítio arqueológico também. O potencial de sítio arqueológico porque não sabemos exatamente onde é que se localizavam e qual é o estado de conservação atual de outras ruínas que eventualmente possam existir.

**Laura Kearney:** [00:31:01] Antigamente, havia jardins exteriores associados à villa ou não sabem..? Eu li que muitas vezes este tipo de *villas*, para pessoas ricas, tinham jardins lá dentro..

**Vera Teixeira de Freitas:** [00:30:59] Sim, eles tinham um jardim interior, têm aquela zona interior. Em termos de jardins exteriores, sinceramente, não sabemos.

**Laura Kearney:** [00:31:56] Qual a distância máxima que acha que as pessoas estão dispostas a andar para visitar um local cultural depois de estacionarem a sua viatura? Mas, na vossa opinião, onde ficam os armazéns antigos, é um bom sítio para pessoas começarem?

**Vera Teixeira de Freitas:** [00:31:56] Acho nós estamos a falar de 500 metros, desde mais ou menos o local previsto para estacionamento.

**Laura Kearney:** [00:32:12] Uma outra maneira de fazer isto seria um lugar visitado apenas por grupos pré-agendados, como é agora.. e não estar aberto todos os dias.

**Vera Teixeira de Freitas:** [00:31:56] Ainda não foi discutido, qual é o modelo se irá aplicar, mas nós consideramos aquilo como uma paisagem cultural. Na minha perspetiva, estou a falar de opinião pessoal, teria de ser um sítio visitável por qualquer pessoa e a qualquer altura, que lhe permitisse não só ver as ruínas se quisesse, mas se não estivesse interessado na arqueologia, poderia usufruir de outras componentes do espaço, seja ela de passeio, de descoberta da natureza, de exercício físico, passeios familiares, zonas de sombra e de descanso também. Na minha perspetiva, faria sentido um sítio que estivesse aberto a toda a gente, à população toda mas com regras obviamente. Depois teríamos de ver qual é a aceitação do público, poder-se-ia eventualmente, pensar num número limite de entradas para não sobrecarregar o sítio, porque muita gente, se calhar, vem mais ao fim de semana e teria de haver uma boa gestão. Mas enquanto habitante de Portimão, eu sinto falta de um espaço desse género, onde eu possa ir com a família, passear, um sítio com sombra, onde tenha informação sobre o património, sobre a natureza, sobre todos os aspetos.

**Vera Teixeira de Freitas:** [00:34:48] Isto é um projeto para a vida.. isto é um projeto que vai tomar muitos anos das nossas vidas.

**Laura Kearney:** [00:34:59] Vera, muito obrigada pela sua ajuda.